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ENVIRONMENTAL ASSESSMENT BOARD



ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 91

DATE: Wednesday, December 11, 1991

BEFORE:

HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,
R.S.O. 1980, c. 140, as amended, and Regulations
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro
consisting of a program in respect of activities
associated with meeting future electricity
requirements in Ontario.

Held on the 5th Floor, 2200
Yonge Street, Toronto, Ontario,
on Wednesday, the 11th day of December,
1991, commencing at 10:00 a.m.

VOLUME 91

B E F O R E :

THE HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

S T A F F :

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MR. R. NUNN	Counsel/Manager, Information Systems
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MS. G. MORRISON	Executive Coordinator

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M. MATTSON)	ENERGY PROBE
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M. IZZARD)	ASSOCIATION, INTERNATIONAL
		INSTITUTE OF CONCERN FOR
		PUBLIC HEALTH
G. GRENVILLE-WOOD		SESCI

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1 --Upon commencing at 10:04 a.m.

2 THE REGISTRAR: Please come to order.

3 This hearing is now in session. Please be seated.

4 THE CHAIRMAN: Mr. Rodger?

5 MR. RODGER: Thank you, Mr. Chairman.

6 I have two packages of materials that I
7 am going to be referring to in my cross-examination
8 which I gave Mr. Lucas, one of which is a series of
9 interrogatories and the other is materials that should
10 be marked as an exhibit.

11 THE REGISTRAR: That will be Exhibit No.
12 414, Mr. Chairman.

13 THE CHAIRMAN: Thank you.

14 ---EXHIBIT NO. 414: AMPCO Cross-examination Materials
15 for Panel 6.

16 MR. RODGER: I have extra copies at the
17 front for my friends if they would like to have them.

18 JUNE BASU ROY,
19 KENNETH SNELSON,
20 ERSKINE LEE FLOOK,
21 THOMAS EASTON WIGLE,
ALANNA MARY QUINN,
BRIAN JOHN MCCORMICK,
REED CAMERON HARRIS; Resumed.

22 CROSS-EXAMINATION BY MR. RODGER:

23 Q. Panel, I act for the Association of
24 Major Power Consumers in Ontario, for those of you I
25 haven't met before.

1 I wanted to begin with the first topic of
2 the economic cost of hydroelectric projects to
3 ratepayers, with one particular emphasis, and to put it
4 in context we have heard quite a bit of testimony
5 throughout the course of Hydro's case that Hydro will
6 implement generation options where those options are
7 economic. And I believe Mr. Snelson again said
8 yesterday to an answer to Mr. Mark, you gave the
9 proviso that you would build sites provided the sites
10 were economical.

11 I wanted to explore the possibility of
12 hydroelectric sites becoming uneconomic in one
13 particular circumstance.

14 Ms. Quinn, in your evidence in chief you
15 described at some length how over the course of the
16 past few years you had a number of public meetings and
17 sessions with various communities throughout the
18 projects with respect to new hydroelectric evidence and
19 kind of the pith and substance of your evidence that I
20 took from that is that Hydro provided various
21 opportunities for the public to raise their concerns
22 with respect to new hydroelectric and this took place
23 over a number of years.

24 You recall that testimony, I take it.

25 MS. QUINN: A. Yes, are you thinking of

1 my direct evidence?

2 Q. That's right.

3 A. In that case I was probably referring
4 to the option study and of the draft strategy.

5 Q. And as part of that discussion and
6 debate that took place with these various communities,
7 was the issue of land settlements or land settlement
8 claims being a part and parcel of new hydroelectric
9 development, was that raised in those discussions?

10 A. Not to any great extent because those
11 discussions were by and large with representatives of
12 provincial organizations or, as I mentioned, groups of
13 people within a region. It may have been raised but
14 the records don't suggest that it was a dominant topic.

15 Q. I wonder if you could go to the first
16 interrogatory in my package, which is 6.2.126.

17 THE REGISTRAR: That will be No. 111.

18 ---EXHIBIT NO. 367.111: Interrogatory No. 6.2.126.

19 MR. RODGER: Q. In this interrogatory
20 you are asked to provide a copy of the corporation's
21 policy regarding developments on land subject to land
22 claims or other negotiations with Aboriginal people.

23 And on page 2 of that package, if you go
24 down to the second last bullet, I would just like to
25 read it, it states:

1 "Ontario Hydro recognizes the
2 commitment of the Province of Ontario to
3 negotiate Aboriginal self-government
4 agreements with Aboriginal peoples.
5 Since these agreements may address the
6 management of natural resource and land
7 use, and since Ontario Hydro, in many
8 instances, will be seeking to obtain
9 project approvals before such agreements
10 are in place, frequent consultation with
11 provincial authorities will take place.

12 Also, Ontario Hydro will consult and
13 co-operate with provincial ministries on
14 Aboriginal matters of mutual interest and
15 participate in provincial programs as
16 appropriate."

17 With respect to this issue of land
18 settlement, land claims, could you provide me with
19 Ontario Hydro's understanding of the province's
20 position with respect to paying out land claims, land
21 settlements in the context of new hydroelectric
22 development which Ontario Hydro proposes?

23 MS. QUINN: A. Much of the answer you
24 are seeking I unfortunately can't respond to. It may
25 be the province that you should ask.

1 But as far as I understand Ontario
2 Hydro's role, there hasn't been much discussion about
3 the financial side of the land claim issue.

4 We have been advised by the provincial
5 and federal governments that land claims are matters
6 that are discussed between First Nations and those two
7 levels of governments directly, and we are to proceed
8 with our planning, and we would be advised if there is
9 any reason not to proceed.

10 The only example I can think of where a
11 land claim has specifically become involved in our work
12 has to do with the transmission line associated with
13 the hydraulic generation that's being considered, the
14 additional hydraulic generation that's being considered
15 for the Niagara facility, and in that case the
16 transmission line will be crossing the Grand River in
17 two locations and there have been discussions with Six
18 Nations and Six Nations is in the process of
19 negotiating a land claim with the provincial and the
20 federal governments, I believe. I'm sure of the
21 provincial government. And we have sought advice with
22 regards to an impact management agreement and what kind
23 of process might be followed to respect the discussion
24 of the land claim while we are at the same time having
25 discussions about our impact management agreement.

1 Q. Okay. I want to get to a couple of
2 specific historical examples in a moment. But I take
3 it that your evidence is that currently with respect to
4 this matter, it is just something that Ontario Hydro
5 has not gone in any great detail with the government
6 about the issue of land settlements, the actual payment
7 thereof, or it is just that you or other members of the
8 panel just aren't qualified to provide me with that
9 kind of information?

10 A. Well, as far as I know, it's not
11 Ontario Hydro that's really involved in the settlement
12 of the claims. It's not our direct responsibility.
13 And so beyond that I don't we really know what the
14 arrangements are between the First Nations and the
15 governments.

16 Q. Okay. If you look at the last bullet
17 of Exhibit 111, the interrogatory, it states:

18 "Give the extensive responsibilities
19 of the government of Canada for matters
20 relating Aboriginal peoples, Ontario
21 Hydro will consult federal authorities
22 and participate in their programs as
23 appropriate."

24 The same question with respect to the
25 Government of Canada, what is your understanding there

1 about the issue of land settlements claims and how
2 those responsibilities are going to be accounted for on
3 the federal level with respect to new hydraulic?

4 A. I really don't know anymore than what
5 I just mentioned about the provincial government. I
6 know there are claims that are in the bailiwick of the
7 province and claims that are in the bailiwick of the
8 federal government, and as far as we know in both
9 cases, those parties are in direct discussion. And
10 it's not my understanding that we are going to have any
11 specific financial responsibilities arising from those
12 claims.

13 Q. Okay. If I could ask you to turn to
14 page 3 of my package of interrogatories, and I am going
15 to be talking about both of them at the same time.
16 6.2.12.

17 THE REGISTRAR: That's previously been
18 entered, Mr. Chairman, and it's 367.69.

19 THE CHAIRMAN: Thank you.

20 MR. RODGER: The next one is a
21 supplementary of 6.2.12.

22 MS. HARVIE: Actually, Mr. Rodger, there
23 is yet a further supplementary, 6.2.12.

24 MR. RODGER: Okay. I am just going to
25 refer to the two I have in this package.

1 MS. HARVIE: There is a correction to the
2 second one. There is an additional claim or two that's
3 been brought to our attention and the Wahnapiatae Band,
4 when we investigated further, apparently it never sued
5 Hydro but there was a claim. I can get you the
6 corrected version.

7 MR. RODGER: So I should just strike that
8 have reference from the response to the supplementary
9 interrogatory.

10 MS. HARVIE: Yes.

11 [10:13 a.m.]

12 MS. PATTERSON: Are we striking the whole
13 response or just that paragraph?

14 MR. RODGER: I believe it is just that
15 paragraph which is found on the second -- it is
16 actually page 7 of my interrogatory package and it is
17 the fifth paragraph.

18 Q. Perhaps, panel, if I could ask you to
19 turn to page 5 of my interrogatory package. I just
20 wanted to ask you a couple of questions about some of
21 these historical claims. And this, incidentally, was
22 an interrogatory asking about impacts of various
23 aspects of hydraulic development on areas within the
24 provinces - complaints, lawsuits and so forth.

25 And as part of the response, it sets out

1 some claims, and the first is the Mattagami First
2 Nation is seeking damages for flooding caused by the
3 construction of the Kenogamissi Falls dam in the early
4 1900s and the subsequent operation of the dam. This
5 claim is currently being negotiated.

6 Has there been any resolution to this
7 claim that you can advise me of?

8 MS. QUINN: A. I understand that what is
9 here is really the current information.

10 Q. Now, in this particular circumstance,
11 is this a matter that the settlement, if it can be
12 settled, that would be the responsibility of Ontario
13 Hydro, the provincial government or the federal
14 -government?

15 A. I believe in this case, it is Ontario
16 Hydro. Maybe I can be helpful here. I had thought
17 your earlier questions had to do with land claims that
18 Aboriginal groups make with regards to their homeland
19 and so on and how that would affect new hydroelectric
20 development.

21 Certainly what this interrogatory
22 discusses are claims made against Ontario Hydro for
23 past activities and I --

24 Q. Yes. Perhaps I wasn't clear then. I
25 was --

1 A. Were you thinking about both
2 categories?

3 Q. I was trying to focus specifically on
4 claims that may result upon Ontario Hydro because of
5 hydraulic developments that Hydro is proposing or has
6 built in the past and the mechanism for settling those
7 claims and how the jurisdiction falls between the
8 various levels of government and the Crown corporation.

9 MS. HARVIE: You really ought to take a
10 look at the supplementary version because the
11 supplementary version advises that this is now a matter
12 that is in the courts, all right? Maybe I will get it
13 copied and hand it to you, so in that case

14 MR. RODGER: Okay. Well, there are a
15 couple of claims hear that have been settled and the
16 situation has ended, so perhaps I could go to more
17 specifics, but I will --

18 MS. HARVIE: May I suggest that you wait
19 and we will get it copied and give to you and you can
20 cross-examine on the basis of more accurate
21 information?

22 MR. RODGER: All right.

23 MS. HARVIE: If you want to go on, that
24 is fine.

25 MR. RODGER: Sure.

1 Q. The next claim that is described, the
2 Islington Band sought damages for flooding caused by
3 the construction of the Caribou Falls Generating
4 Station. This claim was settled out of court for
5 \$2,390,000.

6 Now, for this case, for example, where we
7 already have a settlement, who is responsible for that
8 payment?

9 MS. QUINN: A. I know Ontario Hydro was
10 involved. I am not sure if part of the payment or
11 additional payment was also provided by the federal or
12 provincial level of government. I only have
13 information about Ontario Hydro's role.

14 Q. I just wanted to make one more
15 reference to one of these claims on this interrogatory
16 and that is the last one: The Osnaburgh Band was
17 seeking damages for flooding, damage to cemetery
18 property and that claim is under federal review.

19 I guess what I am unclear about is given
20 the answer to the interrogatory and your previous
21 answers to me today, it seems that there's potentially
22 three entities that could satisfy claims for Ontario
23 Hydro hydraulic developments - the provincial level,
24 the provincial government, the federal government or
25 Ontario Hydro or some combination of the three. And I

1 guess I am looking for direction as where the line is
2 drawn; what makes this last claim I have talked about
3 under the federal jurisdiction and what made that
4 payment to the Islington Band under the Hydro
5 jurisdiction? I guess that is what my client can't
6 find in the evidence to date.

7 And where I am sure where I am leading
8 ultimately, we are trying to determine where all this
9 fits in when you are determining whether hydraulic
10 projects are economic or not, where those costing
11 concepts are brought in.

12 A. I am sure someone else will answer
13 part of what you are asking. The ones that you have
14 referred to in this interrogatory are historical claims
15 and they are involving hydroelectric facilities that we
16 either build or have bought.

17 So Ontario Hydro would be definitely
18 involved in these matters and at times, a provincial or
19 federal government role may also be included.

20 In the question that I thought you were
21 asking at the front end, and I apologize if I answered
22 it narrowly, I had the impression that we were speaking
23 just about land claims to do with homeland and treaty
24 rights and matters related to applications made to
25 provincial and federal governments and that are also

1 referred to as land claims as opposed to damage claims,
2 I think, if that is any help. And in those strict land
3 claim issues, Ontario Hydro has much of a reduced role.
4 In fact, I know it is not clear to me that Ontario
5 Hydro has much of a role.

6 But in the damage-related claims,
7 certainly Ontario Hydro has responsibility and it
8 really depends on the nature of the claim, the extent
9 to which it is our responsibility versus another level
10 of government being involved.

11 MS. HARVIE: I now have received copies
12 of the revised version to 6.2.12.

13 It would be my suggestion that you throw
14 out the previous versions because there were errors in
15 it and that is why we corrected it on two occasions.

16 MS. PATTERSON: Both previous versions?

17 MS. HARVIE: Yes.

18 Do the witnesses need copies?

19 MS. QUINN: Yes. Thank you.

20 MR. RODGER: Q. Okay.

21 Let me ask one question on this revised
22 supplementary response to 6.2.12 because I am doing a
23 quick scan of the copy I have and the new copy; it
24 looks like the paragraph that I want to question on is
25 the same, and that is page 7 of my package of

1 interrogatories, the fourth paragraph from the bottom.
2 And I think this illustrates again my client's
3 confusion with this matter. I would just like to read
4 that paragraph:

5 "White Dog/Islington Band sought
6 compensation for flooding caused by the
7 construction of the Caribou Falls
8 Generating Station. Through a mediation
9 process which took place over a number of
10 years involving the federal and
11 provincial governments and Ontario Hydro,
12 a number of outstanding land claim issues
13 between the Band and government and the
14 Band and Ontario Hydro were resolved. As
15 a result, Ontario Hydro agreed to
16 compensate the Band for \$1,530,000 in
17 interest from July 1st, 1984, to date of
18 payment in 1989. Aside from particulars
19 relating to the claim that have been made
20 public, documentation relating to the
21 claim and the resolution of it cannot be
22 provided to third parties without the
23 consent of the Band."

24 I guess my first question is: Here is an
25 example when all three levels of government --or all

1 two levels of the government and the utility were
2 involved in the mediation process. And I understand
3 from this answer that the responsibility fell on the
4 utility to pay the claim and I am wondering whether
5 that is indicative of --

6 THE CHAIRMAN: Well, it doesn't quite say
7 that. It might infer that, but there may have been
8 payments made by other agencies as well.

9 MR. RODGER: Q. Is that the case, Ms.
10 Quinn?

11 [10:25 a.m.]

12 MS. QUINN: A. I don't have any
13 information that provides further enlightenment really,
14 =I just know what Ontario Hydro's role was. I'm sorry.

15 Q. I wonder if I could then get an
16 undertaking that would set out the policy, the
17 corporate policy on how it goes about approaching these
18 type of claims and what the responsibilities of the
19 federal and provincial governments are?

20 MS. HARVIE: Well. I can tell you there
21 is no corporate policy. It's handled on a case-by-case
22 basis.

23 MR. GREENSPOON: Can you use the
24 microphone, please.

25 MS. HARVIE: I'm sorry. My understanding

1 of it is that there is no corporate policy, it's
2 handled on a case-by-case basis. If I'm wrong, I will
3 certainly advise you after the break.

4 THE CHAIRMAN: Perhaps what you would
5 want to know is what payments Ontario Hydro have made
6 and what outstanding claims are now current -- which
7 they've made some provision for future liability.

8 MS. HARVIE: Well, the question of how
9 much Ontario Hydro has paid out in damage claims is
10 being provided in this Undertaking 366.7, I believe the
11 number is.

12 THE CHAIRMAN: Well, I don't think
13 it's -- not confined to this particular settlement, but
14 to anyone.

15 MS. HARVIE: No, I understand that, but
16 that undertaking will provide a list of all the damage
17 claims that Ontario Hydro has paid out to Aboriginal
18 groups.

19 We have answered this in a series of
20 interrogatories, including 6.2.12 provides all the
21 details of information that has been paid out.

22 MR. RODGER: Perhaps, Ms. Harvie --

23 THE CHAIRMAN: Does it go so far as to
24 say what present claims are outstanding and not settled
25 and what provision has been made for payment of those

1 claims?

2 MS. HARVIE: Well, it does explain what
3 claims are outstanding and have not been resolved or
4 are in the process of negotiation. In terms of
5 provision for compensation monies set aside, no, those
6 interrogatories do not explain that.

7 MR. RODGER: What about payments from the
8 various levels of government, because what my client
9 can't discern is, if you're looking at the costs of
10 hydraulic, either existing or new hydraulic, then you
11 should be taking all of these costs into account. Just
12 because the federal government, for example, makes a
13 payment, not Hydro, shouldn't that be all part of the
14 hydraulic generation?

15 And from the evidence, we can't find
16 where that issue is addressed.

17 MS. HARVIE: Well, with respect, if
18 Ontario Hydro doesn't incur the costs, I don't know how
19 it would be included in our cost estimates.

20 MR. RODGER: Perhaps that's my answer
21 then. It's Hydro's position that a cost incurred by
22 another agency, such as a land settlement, should not
23 be brought into the overall cost equation for, it might
24 be hydraulic generation, it might be another form of
25 generation?

1 MS. HARVIE: Yes.

2 MR. RODGER: Okay, that answers my
3 question.

4 THE CHAIRMAN: All right.

5 MR. RODGER: Q. Turning to more recent
6 history, and perhaps looking to the future, has Ontario
7 Hydro done any preliminary estimates of what
8 compensation costs might be, for example, to the
9 Mattagami redevelopment hydraulic project?

10 MR. FLOOK: A. It is not anticipated
11 that there will be any.

12 Q. If I could ask you to turn to page 1
13 of Exhibit 414, and this is Figure 5 from Exhibit 28.

14 Figure 5 is entitled Hydraulic Plan,
15 Environmental Impact Flooding, and under the sites,
16 Little Jackfish site, it points out that the flooding
17 required for that site is 2,571 hectares.

18 Now, from the group of historical claims
19 that I went over a little earlier on, a common theme
20 seemed to be damages from flooding. I wonder, given
21 the rather extensive flooding for Little Jackfish, are
22 you contemplating that there will be damage claims
23 arising out of this proposal?

24 A. No, I don't.

25 Q. You don't. Okay.

1 A. I believe the flooding in the claims
2 are flooding that was unanticipated. I believe in
3 those projects there were payments made for flooding
4 that was anticipated at the time and what's being
5 claimed for was unexpected events.

6 Q. So can I take from that, and from Ms.
7 Quinn's earlier evidence regarding these public
8 meetings, that the communities affected by Little
9 Jackfish, they didn't raise this concern of a potential
10 damage claim because of flooding required for the
11 Little Jackfish development?

12 A. I'm talking about relating flooding
13 directly to a claim and, no, there may be -- the
14 -flooding may affect other activities which may then
15 result in a claim, but per se flooding on Crown land
16 does not necessarily result directly in a claim.

17 Q. Just so I understand, you don't
18 anticipate any flooding claims, damage claims arising
19 out of the Little Jackfish flooding that's
20 contemplated?

21 A. No, I don't. And the reason for that
22 is, you don't go into a project, to implement a project
23 in anticipation there are going to be claims, you're
24 trying to resolve all the issues ahead of the time and
25 through the EA process and there shouldn't be

1 unexpected claims afterwards unless some unexpected
2 event happens.

3 Q. Okay. Perhaps I'm misconstruing
4 the --

5 THE CHAIRMAN: Excuse me, for a moment.
6 When you were asked the question in this series
7 earlier, you were asked have you made any preliminary
8 estimation of compensation, and you said you would not
9 anticipate there would be any related to the Mattagami
10 flooding.

11 MR. FLOOK: I believe this claim --

12 THE CHAIRMAN: Just a moment. Did you
13 confine that answer to flooding, or did that mean --
14 --that you didn't anticipate any compensation of any kind
15 arising out of that development?

16 MR. FLOOK: Well, any compensation with
17 relation to carrying out the proposed undertaking of
18 expanding the powerhouses, et cetera, other than what
19 may come up as claims relating to the, say, perhaps the
20 purchase or claims that could come from the existing
21 stations.

22 MR. RODGER Q. I see. So these claims
23 that I pointed out in the various interrogatories, they
24 are all, as it were, unanticipated events? They were
25 unanticipated by Hydro that these claims would be made?

1 MR. FLOOK: A. I would expect so.

2 Q. Okay.

3 MS. PATTERSON: I guess the bottom line
4 of your question though, Mr. Rodger, is how they're
5 including any future compensation claims in the cost of
6 hydraulic undertakings. Do you have any help for us
7 there, Mr. Flook?

8 MR. FLOOK: With regard to compensation
9 that may come out of Ontario Hydro putting forth a
10 proposal to carry out an undertaking and as part of
11 that either as a condition of an EA or as a condition
12 of a community impact agreement or something else
13 worked out in the definition phase leading up to
14 obtaining approval, there could be compensation
15 payments agreed to and those are included in the costs
16 of which, in my earlier evidence, I indicated that was
17 included in the engineering component and there was a
18 general allowance there.

19 THE CHAIRMAN: I'm sorry to keep going,
20 but there should be none of this in the planning stage
21 when you are assessing the economics of the attainable
22 potential?

23 MR. FLOOK: In the planning stage we have
24 made a percentage allowance which we feel is a
25 reasonable allowance for it.

1 THE CHAIRMAN: That's your 10 to 20 per
2 cent?

3 MR. FLOOK: That was in the 22 per cent
4 for engineering.

5 THE CHAIRMAN: All right.

6 MR. FLOOK: And then, of course, there's
7 an unknown to it so there is a 10 per cent contingency
8 on that 22 per cent engineering.

9 THE CHAIRMAN: All right.

10 MR. RODGER: Q. Well, perhaps I can
11 ask -- I was going to ask about that later, but maybe I
12 could get a clarification on that now.

13 If you could go to page 2 of Exhibit 414,
14 this is page 14 of Exhibit 362, the hydroelectric
15 capital cost estimates, and at the very bottom there is
16 this 10/20 per cent contingency.

17 Now, I was unclear from your evidence
18 just exactly what contingency those cover. Did those
19 also cover the claims, compensation that I've been
20 asking you about this morning?

21 MR. FLOOK: A. No, that's not right. I
22 showed a range there because, of course, it gets
23 identified specific to the site and what's known about
24 the site or what's not known about the site.

25 The 10 per cent as indicated here applies

1 to all of the components, the total amount. So either
2 your actual direct costs could be greater or less than
3 what you have estimated and there's a 10 per cent
4 contingency there, and each of the other indirect costs
5 could be interest, could be different, or
6 administration, or overhead cost could be different,
7 and that 10 per cent contingency applies to each one of
8 these individual components by applying it to the total
9 dollars.

10 [10:35 a.m.]

11 Q. And these components are those seven
12 that we see on this page 14?

13 A. Yes.

14 Q. Okay. Maybe just continuing on. If
15 you go to page 3 now, please. This is again from
16 Exhibit 362, page 15. I was a little unclear on the
17 column to the furthest to the right, the second block,
18 community impact agreement with a dollar sign after
19 that. Perhaps you could just refresh my memory of what
20 are all the aspects that are covered in that agreement?

21 A. As indicated in my direct evidence I
22 was trying to indicate that in the early planning
23 stages there is a general block of money allowed for a
24 variety of items. As the study process continues on,
25 more and more of these sub items are defined and there

1 is less undefined that falls within that block.

2 I just used for illustrative purposes
3 these number of items that would fall in, and these are
4 items indicated in the direct evidence as falling
5 within this item called engineering.

6 Q. Maybe it would help me if you could
7 give me a real life example of a community impact
8 agreement and the amount of money that was paid, just
9 so I can put it in context.

10 A. Perhaps Ms. Quinn can.

11 MS. QUINN: A. The impact agreement that
12 was negotiated with Darlington in 1978, actually the
13 host municipalities, the Town of Newcastle, and it was
14 an agreement also with the Region of Durham, and it was
15 for \$2.4 million, and Ontario Hydro agreed to keep
16 those dollars current in accordance with a particular
17 formula.

18 The agreement with the Township of Hope
19 which was the host municipality for a station where
20 construction was never completed that was called
21 Wesleyville it was an oil-fired station, construction
22 was stopped in the late 70s, was for something less
23 than 2 million, and I am sorry, I can't remember the
24 exact numbers, but that agreement was terminated
25 because the station was not ever built completely, and

1 all of the provisions of the impact agreement that
2 permitted termination were followed. But for
3 Darlington that was that figure, and I would suggest
4 Darlington is fairly large station, and there were many
5 costs envisioned at the time that were part of that.
6 It covered both impacts associated with the hard
7 services on the municipality as well as soft services.
8 Hard being sewage, water, matters of that sort, and
9 soft being anything to do with social services or
10 education, management studies.

11 Q. So, this community impact agreement,
12 its purpose is to define this engineering cost
13 estimate, and when then is the amount of the payment
14 -fixed?

15 A. Well, the amount of the payment is
16 actually fixed either during the very last stages of
17 the preparation of the impact assessment, but it's
18 usually not finalized until after a project is approved
19 and then the agreement is completed and signed with the
20 affected party. So the dollar numbers are not sorted
21 until you really know what the impacts of the facility
22 could be and the kind of things that are desirable to
23 do, to manage those impacts. So it's really quite far
24 along in the process. It would be a couple of years
25 even after the definition stage of a project has been

1 started that you would come to really know the dollars
2 associated with impact management activities.

3 Q. So the original estimate could change
4 higher or lower, depending on the circumstances that
5 evolve?

6 A. Yes, that's true.

7 MR. FLOOK: A. Just a word of
8 clarification, if I may -- sorry, Dr. Connell.

9 DR. CONNELL: I was simply going to ask,
10 is that 2.4 million per annum?

11 MS. QUINN: No, that was the total. And
12 there were amounts that were related to the various
13 kinds of impacts envisioned and the various kinds of
14 activities that were agreed on, monitoring programs,
15 growth management studies, things of that sort.

16 DR. CONNELL: So your reference to
17 keeping it current, that sum is being disbursed over
18 time.

19 MS. QUINN: It's being disbursed over
20 time, but we are aware that the value of the dollar
21 changes and it is really to keep up with inflation,
22 that there has been a formula worked out that it is
23 within the agreement.

24 DR. CONNELL: Thank you.

25 MR. FLOOK: Just a clarification on the

1 approval, talking environmental approval, of course by
2 the time you go -- that's prior to the Ontario Hydro
3 Board and the Government of Ontario actually approving
4 the commitment of the dollars for an actual project and
5 at that time you do have a knowledge of the value that
6 you have to account for.

7 MR. RODGER: Q. So, to get more recent,
8 or proposed developments, has Hydro made any
9 preliminary estimates of what the community impact
10 agreement, what the sum might be for the Little
11 Jackfish, Mattagami or the Niagara developments.

12 MR. FLOOK: A. Not at this stage in the
13 obtaining approval process. But we feel there is
14 adequate allowances within the estimates.

15 Q. I wanted to ask one final question on
16 this issue, going back to page 7 of my package of
17 interrogatories. Just to repeat the last sentence:

18 Aside from particulars relating the
19 claim that had been made public,
20 documentation relating the claim and to
21 the resolution of it cannot be provided
22 to third parties without the consent of
23 the band.

24 Is that a standard condition with
25 settlements, that they remain confidential and are at

1 the discretion of the particular band whether to
2 release details of the settlement?

3 MS. QUINN: A. I don't know the answer.
4 I just don't know.

5 I think there are other agreements where
6 information is available. I would imagine in most
7 cases that Hydro would ask permission of the band or
8 the First Nations affected just as courtesy, in some
9 cases though it may be specified.

10 Q. Can I get an undertaking on that in
11 case the answer is different? I just want to find out
12 whether this a standard rule, that such releases are
13 confidential.

14 MS. HARVIE: What difference does it
15 make, Mr. Chairman? What does it have to do? We have
16 explained how it's included in our cost estimates. We
17 have provided amounts of particulars paid out, we have
18 provided particulars of claims that remained
19 unresolved, what difference does it make whether we, as
20 a matter of practice or policy or the band or the
21 federal government or the provincial government insist
22 on a clause, or whether it's done as a matter of
23 courtesy? What difference does it make to the
24 questions that this Board is deciding?

25 MR. RODGER: I think it makes a

1 difference, Mr. Chairman, because the ratepayers of
2 this province ultimately pay these claims out, and at
3 some point they are going to be in the rate base. And
4 representing a group of substantial ratepayers, we just
5 want to find out how much payments we are talking about
6 and whereabouts in the general coffers they are
7 recovered.

8 MS. HARVIE: That's a different question,
9 Mr. Chairman.

10 The question was, as I understood it,
11 will we undertake to ascertain whether or not it's a
12 standard clause in the agreement or whether it's done
13 as a matter of courtesy. That was my understanding of
14 the undertaking that was requested.

15 THE CHAIRMAN: At least one case we know
16 down to the last dollar how much was paid. I think the
17 interrogatory says that these matters negotiate on a
18 case-by-case basis. Certainly it's not unusual in
19 damage claims for the amount of settlement by agreement
20 to the parties to be confidential, sometimes it is and
21 sometimes it isn't. But there is no policy, according
22 to the answer from Ms. Quinn, if I understand it, that
23 this is invariably the case.

24 You are getting an undertaking which
25 does - I don't know in what fashion - tell you what

1 Hydro has actually paid out in the way of compensation.

2 We do know, the evidence is that the 22 per cent is
3 meant to capture claims of that nature up to the time
4 of the release of the project and post damage claims
5 would be, I suppose, a matter of civil liability.

6 MR. RODGER: Perhaps I could ask one
7 final question of Mr. Flook on this matter.

8 Q. When we talked about the community
9 impact agreements and how the general revenues that
10 might be paid out, while uncertain at this stage, you
11 were confident that they would be within the boundaries
12 to still make these projects economic. Would it be
13 your same answer for these other types of claims and
14 settlements that we have talked about, when you add
15 those in the equation do they also still end up with
16 the result that these various hydroelectric projects
17 are still economic?

18 MR. FLOOK: A. I guess the first part, a
19 claim is something unusual that happens. You don't
20 plan to have a claim, I don't believe, when you
21 undertake a project, so it's not included in the
22 capital cost.

23 Claims that would occur after, sometime
24 later in the life of the project which may arise out of
25 the manner in which the project is operated, for

1 example, would come out of the operating costs at that
2 time.

3 It's very difficult, of course, because
4 we are talking dollars of different years of a station
5 that was built sometime in the 1950s and currently, but
6 my general statement would be yes, the projects are
7 still economic.

8 Q. Can you tell me, has Ontario Hydro
9 ever made the decision to abandon an otherwise viable
10 project because of one of these payments has arisen, it
11 could be on the community impact agreement level, it
12 could be a claim that arose during a phase of the
13 construction of a new site? Has anything like that
14 ever happened?

15 A. With regard to hydroelectric
16 projects?

17 Q. Yes.

18 A. No, that's never occurred on a
19 hydroelectric project.

20 THE CHAIRMAN: I guess the real issue
21 is how reasonable is the 22 per cent estimate. That's
22 really the issue, isn't it?

23 MR. RODGER: That's right, Mr. Chairman.

24 Q. Now, you have stated at various times
25 in your evidence that you have ongoing consultations

1 with various levels of government, federal and
2 provincial. Last September when the Board and a group
3 of intervenors went up to the Moose River Basin area, a
4 common concern and theme that we heard at the public
5 meetings was that many of the residents were requesting
6 that a cumulative environmental assessment be done for
7 the entire James Bay region, which would encompass
8 projects in Ontario and Manitoba and Quebec. As part
9 of Ontario Hydro's ongoing consultations with the
10 federal government, has this issue been raised and can
11 you advise me if it has been raised, what the federal
12 government has told you their position is on the
13 matter?

14 MR. MCCORMICK: A. The federal
15 government have indicated an intent to undertake a
16 study. To the best of my knowledge, the details of the
17 study have not been formalized. There has not been
18 more than letters exchanged and discussions between
19 provincial and federal governments.

20 Ontario Hydro has indicated a willingness
21 to participate in that. And as I understand it, the
22 first stage was an information-gathering phase and we
23 have agreed that we would provide whatever information
24 we had available to us. Beyond that I don't think
25 there is any more progress.

1 Q. So, it's an information-gathering
2 project?

3 A. At this point.

4 Q. At this point, to determine whether
5 or not it's worthwhile to proceed, to make that
6 decision whether to have a cumulative study or not; is
7 that the thrust of it?

8 A. I can't answer that question. I
9 don't know whether it's hinged on whether the data is
10 needed to proceed. There are probably other political
11 factors involved. I don't know.

12 Q. I am a little unclear as to the
13 purpose then of this preliminary study.

14 The federal government has asked Ontario
15 Hydro for information they can provide about the
16 Ontario segment that impacts on the James Bay area,
17 presumably it's doing the same with Manitoba and
18 Quebec. What is going to be the outcome of that
19 report, the decision whether to have a cumulative
20 environmental assessment or is there some other
21 purpose?

22 [10:49 a.m.]

23 A. Again, I don't know the answer to the
24 question. It could well be that.

25 As I said, at the most right now, there

1 has been some exchange of letters and we have not, to
2 my knowledge, sat down with them to discuss how the
3 study would be framed and what its objectives were and
4 what all the subsequent phases may be, and that is
5 about all I can tell you.

6 Q. Can I take it then that certainly the
7 federal government then hasn't ruled out the
8 possibility of a cumulative environmental assessment
9 for the entire James Bay region?

10 A. Definitely not.

11 Q. I don't know whether you have any
12 more information, any more details on this preliminary
13 study, but if you did have, I would certainly
14 appreciate receiving it. I don't know if that is an
15 undertaking, Ms. Harvie.

16 MS. HARVIE: Well, I am not sure what you
17 mean. Further information is pretty vague as far as it
18 goes, Mr. Rodger.

19 MR. RODGER: Well, I am just not clear.
20 From Mr. McCormick's answer, he seems to be telling me
21 that he is not exactly sure what the purpose of the
22 report is. And if Hydro has any specifics on the
23 purpose of this study, I would appreciate receiving it.

24 MS. HARVIE: All right. Yes, we will
25 undertake to do that.

1 THE REGISTRAR: 366.10.

2 ---UNDERTAKING NO. 366.10: Ontario Hydro undertakes to
3 provide further information on federal
4 government cumulative effects study of
5 James Bay.

6 MR. RODGER: Q. Panel, if you could turn
7 to page 4, please, of Exhibit 414. And this is page 8
8 of Exhibit 362, the lifecycle for hydroelectric
9 generation.

10 And just to refresh my memory, in chief,
11 you took us through this and described the various
12 phases involved from concept to operation for hydraulic
13 sites.

14 If you flip over to the next page, page
15 -5, this is figure 14 from Exhibit 28 which is the
16 hydraulic plan development schedule as it then was in
17 1989.

18 And just to indicate the dates that were
19 anticipated at that time, we see the Mattagami Complex,
20 the first stage was to be in-service by 1994, the last
21 in 1996, Little Jackfish was 1996, and Niagara was
22 1998.

23 Now, if you could refer to page 8 of my
24 interrogatory package, which is No. 6.2.184,

25 THE REGISTRAR: Which is 112, Mr.
Chairman.

1 ---EXHIBIT NO. 367.112: Interrogatory No. 6.2.184.

2 THE CHAIRMAN: Thank you.

3 MR. RODGER: Q. And this interrogatory
4 was answered in September of this year. We see now
5 that the in-service dates have been pushed back.
6 Mattagami Complex is 1997, 1998; Little Jackfish is
7 1998; and there wasn't a date given for the Niagara.

8 Could you advise me what the current
9 in-service date is for Niagara?

10 MR. FLOOK: A. I think you will notice
11 on the interrogatory it says, "with the exception of",
12 so the basis is that Niagara hasn't changed from that,
13 the date shown on that exhibit.

14 Q. I am sorry, I missed that.

15 A. The interrogatory, the 6.2.184.

16 Q. Yes?

17 A. If you notice the sentence just prior
18 to the list of dates, it says -- the last words are,
19 "with the exception of the following". So what is
20 indicated are the exceptions.

21 Q. Oh, I see. So the Niagara date
22 remains the same?

23 A. The Niagara date remains the same.

24 Q. Okay. So that is 1998.

25 Are these exceptions, the 1997, 1998, are

1 these dates still applicable today?

2 A. Of course you have to recognize that
3 in this interrogatory, it had included the Abitibi
4 Complex which, of course, is the subject of the
5 announcement by Mr. Campbell at this hearing that we
6 have suspended studies on that, so that is not
7 included.

8 Q. Yes. I was meaning specifically of
9 the Mattagami, the Little Jackfish and the Niagara.

10 A. In general, I would say yes.

11 Q. Do you think that is a reasonable
12 assumption, Mr. Flook, given the uncertainty as to the
13 length of this hearing and the uncertainty as to the
14 lengths of the site-specific hearings if it gets that
15 far, that you can anticipate getting these projects in
16 service by the dates contemplated?

17 MS. HARVIE: Mr. Chairman, if my friend's
18 question is about lead times, I have no objection; but
19 if it is specifically in relation to these particular
20 projects, I do object to that line of questioning as it
21 is no longer part of our case.

22 THE CHAIRMAN: I think it is a general
23 question, as I took it, applying to all of them; would
24 these kind of lead times be reasonable given the nature
25 of the process?

1 MR. RODGER: Well, perhaps I have my
2 answer, Mr. Chairman, if they are still going with the
3 dates indicated by these three projects that I have
4 pointed out.

5 THE CHAIRMAN: They are still going with
6 them. You asked them if they thought it was
7 reasonable. And I suppose the implication is they
8 wouldn't say they were going with them if they didn't
9 think it was reasonable.

10 MR. RODGER: Yes, okay.

11 Q. But certainly the trend from your
12 initial report in 1989 has been to push back the
13 in-service dates.

14 MR. FLOOK: A. I think in that period of
15 time, the whole relationship between this process and
16 the particular site processes weren't as clear and the
17 full understanding of the implications weren't there at
18 the time.

19 MS. BASU ROY: A. Maybe I could just add
20 a bit to that. Some of the sites were pushed back, but
21 we did have a significant advancement of one of the
22 projects which did impact on the in-service dates of
23 some of the other projects. Patten Post, for example,
24 was advanced significantly.

25 Q. Okay. I want to ask a couple of

1 questions - the matter was touched on briefly
2 yesterday - about selling small hydraulic to the
3 private sector.

4 Mr. Mark yesterday, and you agreed with
5 him, discussed that Hydro wasn't really set up to do
6 these small hydraulic projects and this was part of the
7 reason that small NUGs include small hydraulic sites.

8 I wonder if you could tell me since the
9 hydraulic option is your area of expertise, at what
10 point, at what size plant does a hydraulic generation
11 unit become uneconomic for Ontario to build?

12 MR. FLOOK: A. I don't think there has
13 been any analysis of that. I think there's just
14 certain general assumptions been made.

15 Q. So it could be 5 megawatts; it could
16 be 300 megawatts? Hydro has never looked at that point
17 of when it is --

18 A. We haven't looked at that point of
19 where you draw the line. I assume there is a very grey
20 area and particular circumstances would affect the
21 judgment of whether to do it internally or externally.

22 Q. Have you any idea of what area the
23 grey area spans?

24 A. I believe because there is an
25 interrogatory of larger sites that Ontario Hydro is

1 quite interested in doing. And the reality of fiscal
2 restraint or limitations allows you to only do a
3 certain program of the sites. We haven't reached the
4 point where we have to carry out that analysis to more
5 finely tune the decision.

6 MR. SNELSON: A. Maybe I can just help a
7 little there, Mr. Rodger. The definition that has been
8 used for administrative purposes of small hydro, either
9 by Ontario Hydro or the Ministry of Natural Resources,
10 has been typically in the region of 2 to 20 megawatts.
11 So that is the sort of administrative level that has
12 been used at various times.

13 Q. So I take it then, the decision is
14 made on a case-by-case basis whether or not it is
15 economic for Hydro to proceed with the particular
16 development or not?

17 A. Yes, I believe so, but for
18 classification purposes, the limit has variously been
19 considered, sometimes as low as 2 megawatts, sometimes
20 as high as 20 megawatts.

21 DR. CONNELL: What happens below 2, Mr.
22 Snelson? Do they have another term for it then?

23 MR. SNELSON: No. I think that at one
24 time, the definition that was used for administrative
25 purposes of small hydro was up to 2 megawatts. At

1 various times it has been expanded as being up to 20
2 megawatts.

3 DR. CONNELL: I understand.

4 MR. RODGER: Q. Now, in Panel 5, Mr.
5 Vyrostkco, when this issue was raised about selling
6 hydraulic sites to the private sector, he stated that
7 in the past, there was one site that Hydro sold - I
8 believe that was the Galetta site - and that is as far
9 as he went on the matter.

10 Ms. Quinn, in your direct testimony, I
11 believe you made reference to the Select Committee of
12 the Ministry of Energy where they recommended that --
13 where Hydro may not be interested in developing certain
14 sites, then those should be released to the private
15 sector.

16 MS. QUINN: A. Yes, that was the Select
17 Committee of the legislature, that's right.

18 Q. Can you tell me what the status is of
19 Ontario Hydro selling off more existing hydraulic sites
20 to the private sector?

21 MR. FLOOK: A. I think the subject was
22 in looking at new sites. It wasn't a subject of
23 selling off sites that Ontario Hydro already has.

24 Q. Can you tell me if Hydro has had
25 offers from the private sector to purchase existing

1 hydraulic sites?

2 A. I couldn't comment, no.

3 Q.... I wonder if you could turn to page 9,
4 please, of my package of interrogatories, and this is
5 6.24.17.

6 THE REGISTRAR: 367.113.

7 ---EXHIBIT NO. 367.113: Interrogatory No. 6.24.17

8 MR. RODGER: Q. And in this
9 interrogatory, my client asked you about the
10 possibility of selling to the private sector all or
11 some of the plants included in the SHARP program which
12 you discussed in this panel.

13 I would like to read the answer:

14 = For plants included in SHARP sites,
15 rehabilitation and redevelopment are
16 examined during concept phase. If the
17 analysis indicates that neither
18 alternative is viable, selling the
19 facility is considered for the eight
20 SHARP stations for which concept phase
21 studies have been completed. Either
22 rehabilitation or redevelopment was found
23 to be a viable alternative."

24 My first question is: There is no time
25 frame given with respect to these eight SHARP stations

1 when they will be refurbished and brought back on
2 stream.

3 Could you give me some indication of
4 that, please? What time frame are we looking at for
5 these sites?

6 MR. FLOOK: A. I don't have specific
7 dates the rehabilitation would be complete for any
8 specific site, but in general, the work on those eight
9 sites would be completed by the turn of the century.

10 Q. That seems, at first blush, quite a
11 long time to get these refurbished. Give me the reason
12 for that. They are all fairly small sites.

13 A. I think it is looking at it from a
14 point of view of fiscal spending, in that you are
15 spreading it out over a period of time as opposed to
16 doing all in the SHARP program.

17 In direct evidence, we talked about 33
18 sites. Rather than trying to do all 33 sites at the
19 same time, you put together a program that spreads out
20 the spending over a period of time.

21 Q. Well, maybe if you could turn to page
22 10 of my interrogatory package. This is 6.24.16.

23 THE REGISTRAR: That is .114.

24 ---EXHIBIT NO. 367.114: Interrogatory No. 6.24.16

25 THE CHAIRMAN: Thank you.

1 MR. RODGER: Q. And we asked you about
2 some of the specifics of the SHARP sites. And if you
3 go over to page 11, you will see them all listed and
4 you will see that five or six out of the eight are 5
5 megawatts or less. Actually, let me back up just a
6 minute.

7 Your answer to that previous
8 interrogatory, .113, that indicated to me that Hydro
9 will only sell sites to the private sector if they are
10 uneconomic in Hydro's point of view; is that a correct
11 reading of that response?

12 [11:05 a.m.]

13 MR. FLOOK: A. When an analysis of the
14 alternative rehabilitation and the other alternatives
15 are looked at, if it's uneconomical it would be
16 considered at that time.

17 Q. Only if they're uneconomic.

18 A. That's true.

19 Q. Okay. Now, going to this page 11 we
20 see that a number of the sites here are 5 megawatts or
21 less. Given what you've testified about, that Hydro
22 really isn't set up to deal with projects that are
23 small, under 5 megawatts, and given that a number of
24 these SHARP sites are under 5 megawatts, why wouldn't
25 you sell these off to the private sector?

1 Couldn't they do them quicker and get
2 them up to speed a lot more efficiently than Hydro?

3 A. They still provide a benefit to the
4 electrical users of Ontario.

5 Q. Has a cost/benefit analysis been
6 done?

7 A. Yes, they do each one as they analyze
8 them.

9 Q. Back on page 2 of my interrogatory
10 package this sets out the Hydro guidelines for
11 aboriginal relations. The last sentence of the fifth
12 bullet talks about local ownership of small hydraulic
13 generation where appropriate.

14 Could you give me some examples of where
15 local ownership was appropriate and when the local
16 community did build and operate their own hydraulic
17 station?

18 A. I believe more likely somebody from
19 IPPSO could answer this better than I could, but I
20 understand that there is one site, and I'm not too
21 clear, I don't know all the details, but on the
22 northeast shore of Lake Superior that a small hydro
23 site had been undertaken in conjunction with the band
24 and I think it's the Black River, and I'm not certain
25 which First Nations band was involved.

1 MR. SNELSON: A. Mr. Brown on Panel 5
2 did discuss non-utility generation programs that were
3 being considered that were aimed at encouraging
4 Aboriginal communities to generate in their own
5 community.

6 Q. With the discussions you had, Ms.
7 Quinn, with various communities, was this matter raised
8 and was interest expressed by Aboriginal peoples to own
9 and operate their own hydraulic sites?

10 MS. QUINN: A. The discussions
11 associated with the option study and the draft strategy
12 probably wouldn't have included this kind of
13 discussion. As I mentioned earlier about another
14 point, there isn't any real record of this kind of
15 discussion.

16 I think that's not a surprise though,
17 this is probably become something that's been of
18 interest more recently than the middle 80s, and I know
19 since Ontario Hydro established their NUG division -
20 and that's been perhaps three years, I'm not sure how
21 long exactly, two years - that it's only been in the
22 last while that there has been a fair bit of interest
23 expressed by Aboriginal groups.

24 So I think it's quite a current thing
25 that Aboriginal communities would be looking to this

1 kind of activity.

2 Q. So do I take from that that your
3 sense is that Aboriginal communities are getting more
4 and more interested in the idea of owning and operating
5 their own hydraulic sites as a community?

6 A. It seems to be the case. I have not
7 really any specific references to give you, but I have
8 heard discussion about that they would like to be
9 participating in some financial way with the
10 development of small hydroelectric potential and I
11 don't know whether it means complete ownership or part
12 ownership or something else, but I know they're turning
13 their minds to these kind of questions.

14 Q. So it's still an open issue then?

15 A. Yes, it is.

16 Q. Now, this next issue was touched on
17 briefly yesterday, I don't want to spend a lot of time
18 on it, but if you would go to page 12 of my
19 interrogatory package, which is 6.24.12.

20 THE REGISTRAR: That's 367.115, Mr.
21 Chairman.

22 ---EXHIBIT NO. 367.115: Interrogatory No. 6.24.12.

23 MR. RODGER: Q. And we were asking about
24 the sites that were released by the Ministry of Natural
25 Resources to the private sector and an interrogatory

1 was put to this panel, and I must say that my client
2 was really disturbed to hear that MNR had sole
3 jurisdiction in this matter.

4 I take it from your evidence yesterday
5 that Hydro wasn't really consulted on this.

6 I guess my question is: If we're
7 supposed to be embarking on somewhat of an integrated
8 resource planning type hearing and the idea of
9 partnership at various levels with various communities,
10 can you tell me what changes have been in place since
11 these sites were released to ensure that Hydro is going
12 to have a say in this type of decision in the future,
13 given the significance of the over 300 megawatts of
14 power that were released without Hydro's knowledge or
15 input?

16 MR. SNELSON: A. There has been
17 correspondence between Hydro and the government with
18 respect to this in which a list of hydroelectric sites
19 that Hydro has an interest in are identified.

20 Q. Is it your understanding that MNR is
21 now, as it were, on notice that in future they
22 shouldn't be acting with regard to Hydro's views on
23 this matter?

24 A. They certainly have a list of
25 specific sites that we have a continuing interest in.

1 Q. So it sounds like there's no
2 commitment then that things will be any different next
3 time there might be sites that could be released to the
4 private sector; is that fair?

5 A. I don't believe there is any
6 commitment. There may be some informal understanding,
7 but I don't believe there's a commitment.

8 Q. In your opinion, Mr. Snelson, does it
9 make good planning sense to have a commitment like that
10 in place so that all these key players are working
11 together?

12 A. Ontario Hydro would certainly like to
13 have that commitment.

14 THE CHAIRMAN: I understand, Mr. Snelson,
15 these sites were released in the year 1988 I believe;
16 is that right, by MNR?

17 MS. BASU ROY: That's correct.

18 THE CHAIRMAN: At that time did MNR have
19 before it the expression of interest by Ontario Hydro
20 in those sites?

21 MS. BASU ROY: Yes, it did.

22 THE CHAIRMAN: All right.

23 MR. RODGER: Q. One final issue. Ms.
24 Quinn, you spoke about findings from the public review
25 of Ontario Hydro and two extremely important themes

1 that came out of that were reliability of supply and
2 flexibility. Again, this was touched on briefly
3 yesterday.

4 And as part of this reliability being
5 paramount, you will recall Mr. Snelson you said at one
6 point in your direct testimony, on page 14487, that
7 Ontario is an industrial province and depends on
8 energy. And that to me highlighted the need for a
9 continued reliable supply.

10 I want you to help me illustrate how
11 Hydro can ensure reliability and flexibility by putting
12 a hypothetical to you, and in that hypothetical Ontario
13 Hydro, for whatever reason, may not get approval from
14 this Board for its hydraulic sites, there may be cost
15 implications, things like compensation we've talked
16 about, for whatever reason the hydraulic component
17 doesn't get the go-ahead, what are Hydro's contingency
18 plans, what will replace that hydraulic to ensure that
19 this reliable and flexible supply of electricity is
20 sustained?

21 MR. SNELSON: A. Some mix of other
22 options.

23 Q. So I take that to mean a later panel
24 will address that?

25 A. Well, I believe that Panel 10 and 11

1 will be addressing the balance of the plan and how
2 uncertainties in one element would affect the amounts
3 of other elements that are required.

4 MR. RODGER: Those are all my questions.
5 Thank you.

6 THE CHAIRMAN: Thank you, Mr. Rodger.
7 Mr. Shepherd?

8 MR. MONDROW: Mr. Chairman, perhaps this
9 would be the appropriate time to take the break while
10 we trade places.

11 THE CHAIRMAN: All right. We will take
12 the morning break, 15 minutes.

13 THE REGISTRAR: This hearing will recess
14 for 15 minutes.

15 ---Recess at 11:18 a.m.

16 ---Resuming at 11:35 a.m.

17 THE REGISTRAR: Please come to order.
18 This hearing is again in session. Please be seated.

19 THE CHAIRMAN: Mr. Mondrow.

20 MR. MONDROW: Thank you, Mr. Chairman.
21 Good morning.

22 Good morning, Board Members, and good
23 morning, witnesses. My name is Ian Mondrow and I'm
24 co-counsel for the Independent Power Producers Society
25 of Ontario.

1 If we could first, please, get an exhibit
2 number for the package of overheads. It's No. 415, I
3 believe, Mr. Lucas?

4 THE REGISTRAR: That is correct, No. 415.

5 ---EXHIBIT NO. 415: IPPSO overhead package.

6 MR. MONDROW: And we also have, Mr.
7 Chairman, a package consisting of a few interrogatory
8 responses to which I'll be referring and there are
9 copies of both Exhibit 415 and the Interrogatory
10 package on the table for whoever would like to see
11 them.

12 CROSS-EXAMINATION BY MR. MONDROW:

13 Q. Mr. Snelson, could you please turn up
14 Volume 82 of the transcript, your direct evidence. I
15 would like to start with some of your evidence on the
16 operational aspects of hydroelectric development, and
17 could you please turn to page 14501 to start with.

18 MR. SNELSON: A. Page 14501?

19 Q. That's right.

20 A. Yes, I have that.

21 Q. Okay, thank you. The basic premise
22 of turning water flow into power is that potential
23 comes where a river drops, as stated on line 20 of page
24 14501; is that right?

25 A. Yes. There's potential where there's

1 a flow of water that falls through a difference in
2 height.

3 Q. Right, thank you.

4 THE CHAIRMAN: Just a moment. 14501 is
5 that what you said?

6 MR. MONDROW: That's right.

7 THE CHAIRMAN: Of Exhibit 82?

8 MR. MONDROW: Of Volume 82 of the
9 transcript.

10 THE CHAIRMAN: Oh, Volume 82 of the
11 transcript.

12 MR. MONDROW: Excuse me, sir.

13 THE CHAIRMAN: All right. 1450 ...?

14 MR. MONDROW: 501.

15 THE CHAIRMAN: All right. Now, I've got
16 it. What was your question?

17 MR. MONDROW: Thank you. I just asked
18 Mr. Snelson: I characterize the basic premise of
19 turning water flow into power as underscoring that
20 potential comes where the river drops.

21 Q. And, Mr. Snelson, your answer was...?

22 MR. SNELSON: A. That the potential
23 comes where there is a flow of water through a
24 difference in height, it falls through a difference in
25 height.

1 MR. MONDROW: And that's at line 20 of
2 that page of the transcript, Mr. Chairman.

3 Q. And, Mr. Snelson, you go on in the
4 transcript to point out that such a drop usually occurs
5 over some distance.

6 If we could have our first overhead up,
7 which is also page 1 of Exhibit 415, we have done a
8 crude depiction of a riverbed in cross-section.

9 Would you agree, Mr. Snelson, that
10 conceptually this rather crude depiction embodies the
11 basic principle that we just talked about. You see
12 water flowing downstream?

13 MR. SNELSON: A. Yes.

14 Q. I guess that's what I'm asking?

15 A. Yes, I accept that's generally what
16 it seems to indicate.

17 Q. Thank you. It's just a set up. Now,
18 if we go back to the transcript, please, picking up at
19 line 21, you said that the river drops and usually this
20 occurs over some distance, and one needs a dam to
21 concentrate the head in one place.

22 [11:35 a.m.]

23 If you turn to page 2, please, which is
24 the second overhead, page 2 of Exhibit 415, and here I
25 put in a dam. Now it looks a little more like what we

1 are talking about, I hope. And as you say at line 23,
2 it's the dam that produces the flood. Is that right,
3 Mr. Snelson?

4 A. This particular page seems to be
5 missing from my package.

6 Q. It should be double-sided, I believe.

7 A. No.

8 Q. I apologize, there has been a mistake
9 in the copying. If you could refer to the overhead and
10 I will get more packages at the lunch break.

11 A. Looking at your overheard, then this
12 captures the idea of a dam to concentrate the head in
13 one place.

14 Q. And it is the dam that produces the
15 flooding?

16 A. That's correct, that was my evidence.

17 Q. Thank you. Now, with the dam the
18 water not only flows from A to B, and I have put
19 co-ordinates on the two axes there, A and B along the
20 bottom, but it also drops from X at the top of the dam
21 to Y at the bottom of the side dam. This is the head
22 of the site; is that correct?

23 A. Yes. I am presuming that the Y is
24 intended -- it doesn't seem to be marked on your figure
25 as to exactly what level the Y refers to, but I presume

1 that's the level at the bottom of the dam.

2 Q. That's correct, yes. With that
3 assumption, that represents the head of the site?

4 A. Yes, that's correct.

5 Q. Thank you. At the next page of the
6 transcript, Volume 82, page 14502, you said that:

7 "And if the full head of the river is
8 to be developed..." This is starting at
9 line 1, "...then you need the same dams,
10 you have the same flooding, whether or
11 not the operation is in a peaking mode or
12 run-of-the-river mode."

13 That's your evidence, Mr. Snelson?

14 A. That is correct, and I am talking
15 here about the comparison between peaking and
16 run-of-the-river types of operation.

17 Q. Yes. Thank you.

18 If you could turn then to page 3 of
19 Exhibit 415 you might have page 3, if not...

20 A. I do have page 3.

21 Q. Thank you. This is definitely not
22 art, but I think you can see the concept of a penstock
23 in there, or it could be a tunnel or a power canal
24 running from the top left-hand side of the river bed to
25 the point B along the bottom axis.

1 Now, a penstock is, as we know, a pipe or
2 a tube that takes water from A to B, and in the course
3 of its flow the water also falls from height X to
4 height Y. It's the same then, the same water movement
5 as a dam but there is no dam. This is, in essence,
6 what the Niagara development is; is that correct?

7 A. There are some similarities here to
8 the Niagara development and also to our Little Jackfish
9 development.

10 THE CHAIRMAN: I'm sorry?

11 MR. SNELSON: And also to our Little
12 Jackfish proposed development.

13 MR. MONDROW: Q. Of course without a dam
14 we can't run this particular hypothetical station in
15 peaking mode, can we? Only run-of-the-river, is that
16 right, in isolation?

17 MR. SNELSON: A. It depends on whether
18 there is any water storage at height X.

19 Q. Just as you see depicted here,
20 without water storage this is just a run-of-the-river,
21 not a peaking facility?

22 A. In this theoretical example if there
23 is no water stage at height X then it can't be operated
24 in a peaking mode.

25 Q. But I guess my point is, it's not

1 right to say then, is it, that you need the same dams
2 and the same flooding whether or not the operation is
3 peaking or run-of-the-river, is it?

4 A. The dam is the usual way of
5 concentrating the head in one place. This is an
6 unusual example.

7 There may be a number of examples, and
8 Mr. Flook I am sure can talk about the technicalities
9 of it, but there are alternative ways of developing the
10 head of a river which may involve more or less dams.

11 If the development is by way of a dam or
12 even has water storage at height X, then my statements
13 are still generally correct. It's only in the extreme
14 case when there is no water storage at height X that
15 there would be absolutely no peaking capability. So
16 these are the sorts of alternatives that are looked at
17 in site-specific cases.

18 As I believe I pointed out, Little
19 Jackfish has some aspects of this type of development
20 and would still have peaking capability.

21 Q. Let's just back up for a second.

22 DR. CONNELL: Mr. Mondrow, just so I can
23 understand the figure. You intended convey,
24 presumably, that some of the flow would go down the
25 penstock and some down the river bed. Did you have in

1 mind any particular proportion? Was it 1 per cent or
2 10 per cent?

3 MR. MONDROW: No, Dr. Connell, I didn't.
4 I was just trying to get at the concept of dams versus
5 power canal or penstock type of operation. I didn't
6 break it down in that kind of detailed fashion.

7 Q. Just to back up for a second, Mr.
8 Snelson, I think I just you heard you to say that in an
9 extreme case your statements here at page 14502 of
10 Volume 82 would not be correct. Is that what you just
11 said?

12 MR. SNELSON: A. The normal
13 circumstances are that the head is developed by means
14 of a dam, which would provide some water storage, and
15 the statements that I have made here are generally
16 correct. You can always find exceptions to some of
17 these general statements.

18 Q. Certainly. By normal circumstances
19 what do you mean? What is normal?

20 A. Most hydraulic developments.

21 Q. There is no dam at Niagara, is there,
22 Mr. Snelson?

23 A. That's a rather unusual circumstance.

24 Q. Thank you. Would you say, Mr.
25 Snelson, that Ontario Hydro has a preference for

1 building peaking hydroelectric plans versus
2 run-of-the-river hydroelectric plants?

3 A. As I said in my direct evidence, a
4 peaking type of development generally provides the
5 greatest system benefit and so provided the peaking
6 station is acceptable from the local consequences of
7 having such a station, then we would normally prefer
8 such an operation.

9 Q. To develop a site for peaking
10 capability is really to fully develop the site as you
11 used that term or that phrase. If you could turn to
12 page 14502, we are at 14502 of Volume 82 of the
13 transcript, at line 14, you talk about fully developing
14 a site and you explained what you meant by fully
15 developed.

16 If we go on we can pick it up at line 21
17 of page 14502, you said that full development includes
18 one or more dams to fully develop the available head,
19 which you said, maximizes the energy use from the water
20 available, and includes building enough generating
21 capacity to use most of the water - I am paraphrasing,
22 I believe - even during high flow periods, so that
23 water spillage which you said results in energy loss is
24 minimized.

25 You then go on to say at the top of the

1 next page to say that a fully developed site would have
2 capability to control the flow and store water. That's
3 peaking operation, right, controlling the flow and
4 storing water?

5 A. Yes.

6 Q. Okay, Mr. Snelson, if we could talk
7 about flooding for a couple of minutes, please.

8 It seems to me, and I am going to try to
9 simplify here, that there are two types of flooding:
10 Upstream flooding and downstream flooding. By upstream
11 I mean headpond or reservoir flooding, and by
12 downstream I guess I mean variable river flows.

13 Would you accept my classification for
14 the purpose of questions that I am going to ask you?

15 A. Well, I understand, I think, what you
16 mean by upstream flooding, but I am not quite sure that
17 they are the same thing, downstream flooding and
18 downstream variability of water flow. Obviously,
19 variability of water flow may have some consequences
20 and that could affect of the amount of water in the
21 river.

22 Q. Certainly.

23 A. But that doesn't necessarily mean
24 downstream flooding, I don't believe.

25 Q. Okay. We can talk then about

1 upstream flooding and downstream flooding or variable
2 water flows downstream. Would that be acceptable?

3 A. Yes.

4 Q. It's the dam that creates the
5 upstream flooding, as we just saw on page 2 of our
6 overhead which you had to turn around to see; is that
7 right?

8 I'm sorry, it's not there now, but at the
9 time you turned around to see it.

10 A. Yes.

11 Q. Due to our mistake.

12 And you have already spoken a lot about
13 the environmental effects of this upstream, this type
14 of flooding. Methylmercury or methane release, loss of
15 wildlife habitat, fundamental change in fish habitat,
16 other things that would follow the conversion of a
17 forest into a lake, all these result from upstream
18 flooding; correct?

19 A. I believe that Mr. McCormick has
20 talked about those.

21 Q. Yes. The nature and the extent of
22 upstream flooding then depends on the contour of the
23 riverbed and the adjacent land upstream of the dam; is
24 that right?

25 A. Is this the amount of flooding?

1 Q. Well, the nature of the flooding and
2 the amount of the flooding, the effects of the
3 flooding. The whole package, the whole environmental
4 incursion depends on the contour of the riverbed and
5 the contour of the land adjacent to the riverbed
6 upstream?

7 A. Yes, and any control structures that
8 might be used to contain the headpond.

9 Q. Yes. So if you have a natural gorge,
10 for example, you would get a long, narrow headpond;
11 whereas, if you had relatively flat land upstream of
12 the control structures, the water would backup behind
13 the dam and it would spill all over the place until it
14 comes to rest, subject to any other control structures
15 up there; that's correct?

16 A. Theoretically, yes. I think others
17 on the panel can talk more to the specifics of that
18 such as Mr. Flook.

19 Q. If you would like to, that is fine.
20 I am not too concerned with the specifics right now.

21 I will accept your answer unless anyone
22 wants to add something.

23 A. Sure.

24 Q. The second type of flooding that I
25 wanted to refer to, the downstream flooding or, as you

1 said, the variable river flows. If left alone the
2 river flows vary naturally, won't they? In a pristine
3 river flows vary during the course of the river's
4 natural cycle?

5 A. Yes.

6 Q. So, in spring we gets freshets and in
7 summer the flow is lower, sometimes even what one would
8 call dry, the riverbed would approach dryness; is that
9 correct?

10 A. It would depending on the river.

11 Q. They are variabilities?

12 A. Yes.

13 Q. And these variabilities are part of
14 the river's natural ecological balance? As we have
15 seen, I have asked you to suppose a pristine river, so
16 that is a natural variation?

17 A. That is natural phenomenon.

18 Q. Now, when you plunk down a
19 hydroelectric facility on that river, you impinge the
20 natural flow whenever you operate it to any extent in
21 peaking mode; is that correct?

22 A. You would change the flow, if it is
23 operating in the peaking mode. The flow can also be
24 changed by such things as upstream control structures
25 and so on.

1 Q. In fact, when water flows are
2 naturally highest in the spring, Ontario Hydro needs
3 less capacity and the general tendency would be to
4 store water. Downstream flows would thus be cut, is
5 that right, given a large storage area in a peaking
6 type facility?

7 A. Most of our peaking facilities don't
8 have very large storage areas. The storage associated
9 with most of our peaking facilities is relatively small
10 compared to the volume of water that comes down the
11 river during spring freshet.

12 Q. Would it not be generally true to say
13 that to the extent that Ontario Hydro's facilities
14 store water, the storage takes place predominantly in
15 the spring and when river flows are naturally highest?

16 A. We do try to use the storage in the
17 spring and that may be the storage the peaking
18 stations, there may also be upstream storages that
19 could be quite a lot larger. It depends on the river
20 system.

21 Q. And in the winter when natural flows
22 are lower, Ontario Hydro gets most value out of the
23 stored power, in essence, by running the station, and
24 so the downstream flows would be artificially elevated
25 during the winter; is that correct?

1 A. Yes. This is not so much peaking
2 operation as the -- when we are talking about peaking
3 operation we generally have been thinking more about
4 variations within a day or within a week. This is more
5 like the annual regulation of the river system that Mr.
6 Wigle talked about.

7 Q. It would still be in
8 contradistinction to a pure run-of-the-river facility,
9 wouldn't it, the kind of annual shifting that you are
10 talking about?

11 A. Yes, though a run-of-the-river
12 generating plant that is on a river that has its
13 headwaters controlled by some storage would have this
14 pattern too.

15 Q. Certainly. So, what we have
16 generally with Ontario Hydro's operation is a reversal
17 of the natural ecology of the river. That's what we
18 just talked about; is that correct?

19 A. We have talked about the effect on
20 flow, others would have to talk about its effect on the
21 ecology of the river.

22 Q. I thought we agreed that there was a
23 natural -- perhaps I am using the term ecology
24 inappropriately. I thought we had agreed that there
25 was a natural variation of flows on a pristine river

1 and that when we put a hydroelectric facility down
2 there that doesn't operate purely run-of-the-river,
3 those flows, the natural balance of the flows will be
4 interrupted; is that correct?

5 [11:53 a.m.]

6 A. Yes. I think that what you have
7 described is a regulated river system in terms of the
8 changes in flow over the year.

9 Q. Of course, if a facility in
10 isolation -- or say a whole river system is developed
11 as purely run-of-the-river facility, one or more
12 facilities on that river, the downstream flows both
13 before and after the facility are developed won't be
14 indifferent, will they?

15 A. In a theoretical case where all
16 interferences with the natural flows on the river are
17 run-of-the-river facilities, then the flow in the river
18 is not changed, except in the case such as the penstock
19 example that you have described where the flow is
20 changed between the point where the water is taken out
21 of the river at the higher elevation and where it is
22 returned to the river at the lower elevation.

23 Q. Okay. Now, as you said earlier,
24 down -- what I referred to originally as downstream
25 flooding, which we have talked about as variable flows,

1 have very different environmental impacts than upstream
2 or headpond flooding. I will just briefly recap these
3 to save some time and then if anyone wants to add,
4 please feel free.

5 There is a relationship between fish
6 spawning and there are problems with inadequate flows
7 or inadequate depths or inadequate velocities
8 downstream. There's dewatering problems sometimes and
9 there are --

10 THE CHAIRMAN: I am sorry, what water
11 problems?

12 MR. MONDROW: Dewatering problems when
13 the stream is dried up or dewatered. There are
14 scouring and deposit pattern interruptions and there
15 are temperature and oxygen content variations
16 downstream.

17 Is that, in a nutshell -- they are
18 different kinds of effects than the upstream flooding
19 that we started off talking about, Mr. McCormick.

20 MR. MCCORMICK: A. Those are the types
21 of issues that I addressed and that they would occur
22 under specific circumstances and especially if no
23 mitigation measures were applied to limit or eliminate
24 them.

25 Q. Sure, those are the problems and then

1 they have to be solved. Thank you.

2 We have already agreed, I hope, that a
3 hypothetical of pure run-of-the-river operation
4 produces no downstream variable flows. And I have
5 tried to show that if engineered in a certain way,
6 there may be no flooding at all upstream.

7 And in a hypothetical situation, you
8 agreed with that, Mr. Snelson; is that fair?

9 MR. SNELSON: A. In a hypothetical
10 situation.

11 Q. Okay. Yet, peaking operation always
12 requires flooding both upstream and downstream or
13 variable flows downstream; is that correct by
14 definition?

15 MR. FLOOK: A. Not necessarily so.

16 Q. Could you explain your answer,
17 please, Mr. Flook?

18 A. Oh, because once again, as Mr.
19 McCormick has explained, it is very site-specific and
20 you just can't make generalized statements like that.

21 If your headpond happens to be a large
22 lake, you don't see that.

23 Q. You don't see what?

24 A. If you are discharging into a lake
25 downstream, you don't see that. So, it is difficult

1 straying from the hypothetical into, you know, what
2 really is occurring out there, so you have to be very
3 cautious about, I think in this hypothetical case,
4 drawing generalized statements.

5 Q. So as a general principle, you
6 wouldn't feel comfortable saying that with a purely
7 run-of-the-river system, water flows downstream of the
8 bottom end of the penstock or power canal are
9 unaltered. That is not a generalization you would
10 make.

11 A. Vice versa, the other way around; as
12 the discussion was going and the question was that a
13 peaking station, that there were some effects. There
14 may not be. There may be; there may not be.

15 Q. And you are saying that you could run
16 a peaking facility without any downstream effects at
17 all, any variations --

18 A. It could very well be, very
19 site-specific.

20 Q. Mr. Snelson, you said that full
21 development meant dams and storage and a fair amount of
22 peaking operation; is that fair?

23 MR. SNELSON: A. This is a typical type
24 of case in which there would be full development of a
25 river.

1 Q. We would get dams?

2 A. And there are exceptions in both
3 directions.

4 Q. Certainly. But your definition of
5 full development in the transcript, you said we would
6 get dams and we would get storage and it would involve
7 peaking operation. That is your testimony; is that
8 correct?

9 A. That is typical of full development.

10 Q. Mr. Snelson, I would like to put to
11 you a redefinition of the term "full development" and
12 ask for your reaction to my redefinition.

13 And I would posit that if one looked at
14 hydroelectric development with the river's natural
15 ecosystem, natural flow levels as the point of
16 reference, what you have termed -- excuse me, full
17 development, as I would like to put it, should mean
18 harnessing the river up to the fullest extent practical
19 without significantly disturbing its natural ecological
20 balance.

21 This would make development beyond that
22 optimum from the river ecosystem point of view now
23 overdevelopment in fact, and there would be the
24 concomitant detrimental consequences for the flow
25 regime, the natural flow regime of the river.

1 This, I would suggest, is a more intuitively
2 appropriate use of the word "full" in the context of
3 hydroelectric development.

4 Would you care to react to that?

5 A. I see this as being the same
6 description but from the other end or very similar; it
7 is sort like a half empty or half full discussion.

8 My discretion was, these are the things
9 that one would like to have for full development from
10 the system point of view provided they are acceptable
11 from an environmental point of view.

12 Your description, and I am talking very
13 generally - I am not relating to the specific words -
14 but the general idea appears to be, this is what is
15 acceptable from the environmental point of view and the
16 maximum it can provide to the system and I see them as
17 being -- once you have got the qualifications taken
18 into account, then the concepts are rather similar.

19 Q. It depends on your starting point,
20 but the package that you are looking at, the concept is
21 similar; that is fair? You have said it depends on
22 your starting point in essence, is that right, your
23 baseline?

24 A. Well, you are saying had this is what
25 we would like to have from the system point of view and

1 provided that it can be accommodated from a local
2 environmental perspective.

3 You are coming at it from the other
4 direction of saying, these are the things that are
5 acceptable from an environmental perspective and this
6 is the maximum it can provide to the system.

7 Q. Fair enough.

8 A. And I see that the -- that it is
9 really a description like whether a glass is half full
10 or half empty.

11 Q. Okay. I would like to move on. We
12 are still on the same page of Volume 82 of the
13 transcript, 14502. And at line 9, Mr. Snelson, you
14 said that:

15 "If the dam is half as high, then you
16 get half the energy and half the
17 capacity."

18 My question is: Do you also get half the
19 flooding?

20 A. And that depends on the topography of
21 the land.

22 Q. Very generally speaking, though,
23 would it be fair to say that the relationship between
24 dam height and flooding is an exponential one? That
25 is, for a decrease in dam height, a halving of the dam

1 height, there is an exponential decrease in the
2 flooding, Mr. Flook?

3 MR. FLOOK: A. I wouldn't go so far as
4 to say that. Once again, you are very site-specific at
5 what the topography of the area is. It may have
6 various relationships and to characterize it as
7 exponential, I wouldn't.

8 Q. I take it that Ontario Hydro hasn't
9 developed any model or looked at any relationship
10 between dam height and flooding, generally speaking?

11 A. It is very site-specific, as I say,
12 depending upon the topography of the area.

13 Q. And there has been no analysis to
14 that effect?

15 MR. MCCORMICK: A. This is the sort of
16 thing that one would do as part of a site-specific
17 environmental assessment; for example, at the Patten
18 Post development which has been identified as one site,
19 there could be up to three dams at, I believe, six
20 sites with about 16 development scenarios. And one
21 looks there for it at not only the areas flooded by
22 these, but the use of those areas and the importance of
23 those areas.

24 And to just broadly suggest that area
25 flooded is the only consideration is perhaps not the

1 appropriate one. Also, one has to consider what is
2 taking place in that area that is flooded. If certain
3 areas are more important to Aboriginal peoples or to
4 fish spawning, it may be more important to protect it
5 for that reason alone and not because it happens to be
6 greater than or less than another alternative in terms
7 of total flooding area.

8 Q. I appreciate your comments, Mr.
9 McCormick. I thought my question was fairly simple. I
10 had asked if Hydro had done any analysis to compare dam
11 height to the extent of flooding. And I think the
12 answer is no; is that correct, Mr. Flook?

13 MR. FLOOK: A. That is correct, because
14 it is very specific to the topography of any particular
15 area.

16 Q. Thank you.

17 MR. SNELSON: A. I think the
18 qualification of Mr. McCormick is that in looking at
19 different development schemes at specific sites, then
20 various dam heights and locations and combinations of
21 dams in different locations are looked at that would
22 have different amounts of flooding associated with
23 them.

24 So, at the point where you have the data
25 to do that type of analysis, then it is done but on a

1 site-specific basis.

2 Q. And it is Hydro's position then that
3 it is not possible to do that on a generic basis, on a
4 conceptual basis; compare dam height to flooding that
5 is?

6 MR. MCCORMICK: A. It is not useful to
7 do it.

8 Q. Thank you. Mr. Snelson, I am still
9 on Volume 82 here although I am going to change the
10 page. If you could turn back to page 14500.

11 Starting at line 20, you said that:

12 "Because the water cannot be
13 controlled, it's not possible to rely
14 upon the full output of the generating
15 station as reliable capacity to defer the
16 need for other capacity."

17 And then jumping ahead to page 14506, you
18 said as recorded starting at line 12:

19 "The full capacity" - and here you
20 were talking about a 90 per cent capacity factor
21 development - "is not dependable if the development is
22 operated in run-of-the-river mode.

23 This is because without storage, you get
24 only the water -- I have stopped reading. I am going
25 to ask the question. I believe that this is because

1 without storage, you get only the water that the river
2 gives at any particular time, right? You don't know
3 what the capacity will be except by guessing at what
4 the river is going to give you at that time. That is
5 why it is not dependable without storage; is that
6 correct?

7 MR. SNELSON: A. Yes. The generation
8 depends on the flow in the river at that particular
9 point in time. And if the installed capacity of the
10 plant is significantly greater than the minimum flow in
11 the river, then you will get maximum capacity for that
12 proportion of time that the river flow exceeds the
13 maximum capability of the generating station, and that
14 is likely to be during spring, perhaps fall and it is
15 less likely to be during winter or summer peak periods.

16 Q. You went on to say that in the case
17 of run-of-the-river operation, the dependable capacity
18 will be determined by typical winter flows, pointing
19 out that typical winter flows are often much lower than
20 installed capacity.

21 Again, at this excerpt you were talking
22 about a 90 per cent capacity factor installation.

23 But will agree, I think, that capacity
24 could be installed to match any rate of flow right from
25 the maximum rate of flow at any time during the year

1 down to just above zero. It is a choice as to what
2 capacity you installed, correct?

3 A. Yes. I am not sure about your
4 reference to a 90 per cent capacity factor because I
5 believe that I indicated that for the generating
6 station where the turbine capacity was only a little
7 above the minimum flow in the river, that the capacity
8 was fairly dependable.

9 It was where the turbine capacity was
10 approaching the maximum flow in the river that the
11 capacity would be very definitely not dependable if
12 there was no water storage.

13 Q. Well, that is fine. That is the
14 point that I was getting at. If full installed
15 capacity, for example, was fixed at winter flow rates,
16 then the full installed capacity would be dependable?

17 A. Only with water storage. Sorry, if
18 the full installed capacity -- I may have
19 misunderstood --

20 Q. Is set by reference to the winter
21 flow rates or the lowest flow rates, then that full
22 installed capacity becomes dependable by definition?

23 A. That is correct, but my evidence was
24 that with that sort of operation, only a small
25 proportion of the hydraulic energy available in the

1 river is captured.

2 Q. So what you do then traditionally,
3 what Ontario Hydro does is match its full installed
4 capacity to a flow rate that is higher than the minimum
5 flow. And when you do that then, you get a portion of
6 the installed capacity that is dependable for the
7 purposes of deferring other generation, some smaller
8 portion than the full installed capacity, correct?

9 A. With water storage, then generally,
10 most of the installed capacity is dependable.

11 Q. If you design your facility to
12 operate as a run-of-the-river facility and you
13 installed -- your full installed capacity was matched
14 to the maximum flows of that river, the springtime
15 flows, then you would still have an amount of capacity
16 probably equal to the winter flows that would be
17 dependable for the purposes of deferring other types of
18 generation; that's correct?

19 A. And that was my evidence on 506. I
20 said, in the winter, the flows are much less.

21 [12:08 p.m.]

22 And if you operate it run of the river,
23 then dependable capacity would be determined on
24 particular winter flows in a relatively dry year.

25 Q. Okay, thank you. You've testified,

1 Mr. Snelson, that you design a hydroelectric facility
2 to fully develop a site, and I take that to mean to
3 capture as much capacity as is economic.

4 If we turn to Exhibit 28, please, the
5 1989 Hydraulic Plan, at page 10, in the second
6 paragraph you talk about the judgment made -- excuse
7 me, you talk about the judgments made as to which sites
8 to include in practical potential, and one of the first
9 things you say there is how each site should be
10 developed so as to maximize its contribution to the
11 power system.

12 This maximizing the contribution to the
13 power system seems to me to be a hinge pin of Ontario
14 Hydro's approach to hydroelectric development. Do you
15 agree with that, Mr. Snelson?

16 A. It's certainly one of the objectives
17 that we have. And the maximizing is in terms of both
18 power and energy. You referred to maximum development
19 as being able to defer the maximum amount of capacity.

20 As I pointed out, I believe in my direct
21 evidence, we think that the energy part is important
22 too.

23 Q. If you turn to page 14, please, of
24 Exhibit 28.

25 THE CHAIRMAN: Of Exhibit 28?

1 MR. MONDROW: 28, yes, sir. I'm sorry,
2 my throat seems to be drying up a bit.

3 Q. Second last paragraph on page 14, it
4 says that:

5 Because the stations will be designed
6 to optimize the capability of the site
7 based on available water flow, they will
8 not be able to run continuously. Most of
9 the developments, therefore, will be
10 peaking rather than run-of-the-river.

11 You plan to build hydraulic to peak; is
12 that correct, Mr. Snelson, as a general principle?

13 MR. SNELSON: A. We try to develop
14 hydroelectric so it best matches the system and that
15 often involves peaking. It doesn't necessarily mean
16 that minimum generation will be zero.

17 Q. No.

18 A. We try to incorporate some element of
19 peaking.

20 Q. Okay. If we could look at
21 Interrogatory 6.14.45, and I believe that will need a
22 number.

23 THE REGISTRAR: That is .116.

24 ---EXHIBIT NO. 367.116: Interrogatory No. 6.14.45.

25 MR. MONDROW: Mr. Chairman, that's at the

1 top of the interrogatory package that I provided.
2 There are actually just two interrogatories in this
3 package, all of the paper in between are excerpts from
4 attachments that we received for 6.14.45.

5 And one of these attachments was Ontario
6 Hydro Strategy for Hydroelectric Generation and
7 Development. That was actually attached as Appendix E
8 to an Ontario Hydro paper which I haven't copied as it
9 was quite thick and I'm not going to be referring to
10 it, but for reference it was entitled "Planning for
11 Hydroelectric Generation, A Discussion Paper, the Moose
12 River Basin" it was report No. 87202, dated June, 1987.

13 Q. Now, I've just copied the generic
14 strategy itself, Appendix E, and if we look at page
15 4 -- page numbered 4, that is of that appendix.

16 THE CHAIRMAN: Just a minute now, we have
17 to find this.

18 MR. MONDROW: It should be Appendix E,
19 page No. 4.

20 THE CHAIRMAN: Okay.

21 MR. MONDROW: Q. If we look at the top
22 of the page we see the objective of the orderly
23 development of economic hydroelectric generation
24 potential to provide diversity and peaking capability.

25 Mr. Snelson, with these references can we

1 agree at least that, everything else being equal, you
2 maximize peaking; that is capacity in the development
3 of hydroelectric sites?

4 MR. SNELSON: A. You have the hook on
5 the front there, everything else being equal.

6 Q. That was a mistake.

7 A. With that proviso, I would agree with
8 you.

9 Q. Okay, thank you. I'll take that.
10 Facilities that can be operated in the peaking mode
11 provide more capacity that is dependable for a given
12 site than would a pure run-of-the-river system. We've
13 talked about that.

14 A. Yes.

15 Q. Because they have to store water, and
16 so the civil works are more extensive, they're
17 generally bigger developments; is that fair to say?

18 MR. FLOOK: A. I wouldn't generalize it
19 that way. The bigger in the civil works perhaps in the
20 generating -- in the facilities to generate
21 electricity, which would be larger if it was larger
22 capacity, but the dam structure may be the same.

23 Q. Well, if you develop a site as pure
24 run-of-the-river or you develop a site to store water
25 and peak, the latter development would be bigger on a

1 given site; is that fair?

2 A. As I said, the structure associated
3 with the generating part of the facilities would be
4 larger because of the larger generating capacity.

5 Q. Okay, thank you. Still in Volume 82
6 of the transcript, if you can turn to page 14508 and go
7 down to line 22, you answered, Mr. Snelson, with the
8 words:

9 "We tend to measure our needs for
10 electricity in fairly large quantities of
11 electricity. They tend to be measured in
12 hundreds of megawatts or thousands of
13 megawatts."

14 Continue on to page 14509, please, you
15 say at the top that:

16 "...as a practical matter, Ontario
17 Hydro tends to pursue the larger
18 hydroelectric developments both because
19 this is appropriate to the scale...", of
20 its needs,

21 "...and...because there are
22 economies...", of scale achieved by,
23 "...building a few large stations
24 rather than many smaller ones."

25 Now, Mr. Snelson, as well as developing

1 more peaking capacity, this emphasis on large
2 hydroelectric projects probably means aggregating
3 developable head at one site; is that generally
4 correct?

5 MR. SNELSON: A. Not necessarily.

6 Q. We could look at Interrogatory
7 6.14.76, which should be the last page of the
8 interrogatory package.

9 THE REGISTRAR: That will be .117, Mr.
10 Chairman.

11 ---EXHIBIT NO. 367.117: Interrogatory No. 6.14.76.

12 MR. MONDROW: Q. In part C we asked
13 about sites on the Little Jackfish River as identified
14 in Exhibit 82 - which you don't have to turn up - it's
15 the 1987 Hydroelectric Power Resources of the Province
16 of Ontario.

17 So if you look down to the part C
18 response, we're told that the developable head on the
19 river which was identified in Exhibit 82 as being
20 primarily at three sites with greater than 10 megawatts
21 of potential each is to be aggregated at one powerhouse
22 and main dam.

23 This is aggregating at least three
24 smaller sites into one larger one. That's what it
25 says, Mr. Snelson? Mr. Flook?

1 MR. FLOOK: A. Generally speaking, yes.

2 Q. On the appropriate to the scale of
3 your needs issue from the transcript I quoted a few
4 minutes ago, Mr. Snelson, if all the hydraulic
5 potential that Ontario Hydro has planned for were to be
6 developed to the extent possible by pure
7 run-of-the-river systems only, do you know how many
8 megawatts we would get of capacity out of that?

9 MR. SNELSON: A. No.

10 Q. If this Board were to conclude that
11 flooding is not acceptable at all, period, that might
12 be a figure that they would want to know about that.
13 Could you undertake to provide us with that figure, Mr.
14 Snelson?

15 A. I think we need to have this defined.
16 I've heard two things, I've heard run-of-the-river and
17 I've heard about flooding, and I'm not sure what the
18 request is.

19 Q. The request is to develop a river
20 without any flooding.

21 MR. FLOOK: A. No, that would require
22 very site-specific studies of each site to come up with
23 an arrangement which would take some time, measured in
24 months.

25 Q. Could you in your experience give us

1 a ballpark figure of what it would mean if it was
2 decided that no flooding at all was appropriate, what
3 we should rely on for the purposes of Ontario Hydro's
4 hydraulic planning?

5 A. I have no idea.

6 MR. SNELSON: A. The only point that I
7 could make is that the run-of-the-river operation which
8 generates peak capacity that is comparable to winter
9 flows, even if you could develop the same head, I
10 believe I said in my direct evidence that that's
11 typically 1/4 to 1/10 of the dependable capacity that
12 we get from peaking operation.

13 Now, that will obviously depend on the
14 particular characteristics of particular rivers, but
15 that was my comment on that, and that would not
16 necessarily eliminate flooding, that would be what you
17 would get by just changing the operating pattern with
18 the same amount of flooding, so...

19 Q. So do I understand you, that if we
20 change the operating pattern to run-of-the-river, we
21 would get the same amount of flooding as under your
22 current plans, in which many of the facilities, if not
23 all of the facilities, operate to peak?

24 A. If the head is developed in the same
25 way by means of a dam, then you get the same flooding

1 whether or not you operate in the peaking mode or
2 run-of-the-river.

3 Q. Well, I guess my point is that you
4 need not develop the head the same way if you only are
5 going to operate run-of-the-river and if flooding was
6 shut down --

7 A. All I'm saying -- my comment, and I
8 will tell you how I derived that figure of one quarter
9 to one tenth, and that was the comparison for Ontario
10 Hydro's existing peaking hydraulic stations between
11 dependable peak output and what is their average output
12 in a winter month, all right. So that was how I
13 determined that figure.

14 And that would be just by taking the
15 existing development and operating it as a
16 run-of-the-river instead of a peaking mode.

17 Q. Okay, thank you. Would you agree
18 that to the extent that we left the rivers in Ontario
19 to development by small hydraulic non-utility
20 generators, they could develop the potential that's out
21 there cheaper than Ontario Hydro?

22 A. The question is specific to small
23 developments?

24 Q. Yes, under 20 megawatts, for example.

25 A. We have generally taken that

1 position. I don't know that -- we've said we don't
2 have studies to show that, but that's the position we
3 have generally taken.

4 Q. I take it then you don't have a study
5 to show how much capacity we would get if it were
6 decided to limit hydraulic development to 20 megawatts
7 or less in the province?

8 [12:25 p.m.]

9 Could you give us that figure, 20
10 megawatts or less per development.

11 A. Is this 20 megawatts or less per
12 development and developed by non-utility generation?

13 Q. Is there a difference?

14 A. Well, the forecast of what
15 non-utility generation will be developed has been given
16 in Panel 5.

17 Q. And that assumes that Hydro will
18 develop the stations in its hydroelectric plan.

19 I am asking if Hydro were not to develop
20 any stations above 20 megawatts and if non-utility
21 generators instead were to develop --

22 THE CHAIRMAN: Do you mean above or
23 below?

24 MR. MONDROW: I meant above.

25 Q. If Ontario Hydro were instructed not

1 to develop any hydroelectric above 20 megawatts and
2 instead to allow non-utility generators to develop
3 anywhere in the province under 20 megawatts per
4 development, can you tell us how much capacity we would
5 get from that kind of a strategy?

6 MR. SNELSON: A. I don't believe we can.

7 Q. Okay, I would like to divert here for
8 a minute if we could.

9 In Panel 5, Ms. Basu Roy, Mr. Brown told
10 us that there are over 50 megawatts of hydroelectric
11 sites under 2 megawatts in the Moose River Basin. The
12 reference for that statement, and you need not turn it
13 up, but for the record it's transcript Volume 70, page
14 12611, and it starts at line 22.

15 But if you could please turn up a paper
16 attached in response to Interrogatory 6.14.45 again, I
17 have already mentioned that interrogatory. It's report
18 No. 88826, and it's entitled "Proposal for
19 Hydroelectric Power Development, The Moose River
20 Drainage Region." I would like to go to the appendix
21 of this report which is found after the figures. And
22 the appendix is entitled -- I'm sorry, that's the title
23 of the paper. The appendix sets out currently known
24 sites with potential for development in the range of 10
25 megawatts to .1 megawatts.

1 I have just done a rough count of the
2 total capacities --

3 THE CHAIRMAN: Just a minute now. Just
4 hold on.

5 MR. MONDROW: I apologize, sir.

6 THE CHAIRMAN: Where are we looking at?

7 MS. PATTERSON: How far from the back is
8 this?

9 MR. MONDROW: It follows the figures, and
10 it is eight double-sided pages from the back is the
11 title sheet to the appendix.

12 I'm sorry, I am not working from the same
13 package that you are. I went to grab one and they are
14 gone.

15 THE CHAIRMAN: It's headed Table 248,
16 Moose River Drainage Region, Currently Known Sites with
17 2.0 to 10.0 Average Megawatt Potential.

18 MR. MONDROW: That's right, Mr. Chairman.
19 I think it is Table 24B, but on the copying it's not
20 correct.

21 THE CHAIRMAN: I'm sorry, 24B is correct.

22 MR. MONDROW: Q. Now again, Ms. Basu
23 Roy, we were told by Mr. Brown in Panel 5 that there
24 are over 50 megawatts worth of hydroelectric sites
25 under 2 megawatts in the Moose River Basin.

1 Now, admittedly this table looks at sites
2 under 10 megawatts, and I have done a rough addition of
3 these and I have come out with about 240 megawatts.
4 Could you confirm that number for me, that range?

5 MS. BASU ROY: A. First of all, we have
6 provided an update of the hydroelectric potential
7 available in the province, that's contained in Exhibit
8 359. I am not too sure if that's consistent with this
9 table that we are looking at here.

10 Q. Perhaps we should take a look at
11 that, Exhibit 359.

12 A. No, it's not. Exhibits 359 is not
13 specifically laid out for the Moose River Basin.

14 Q. That will be difficult then.

15 Perhaps I could ask you to accept the 240
16 megawatts, subject to check, and if you could undertake
17 to advise us if the number is significantly different
18 from that.

19 You will see, for the purposes of my
20 question, that the exact number is not important. I am
21 looking at the distinction between the 50 megawatts we
22 were told about in Panel 5 and the 240 megawatts that
23 we see in this report.

24 Would that be satisfactory, Ms. Basu Roy?

25 A. I am just looking at some of the

1 sites here. Now, I think they have already been
2 accounted for.

3 I see the Newpost Creek site, which I
4 believe is in the sites that are in the provincial
5 parks. Some of this may have been excluded.

6 Q. And that provincial parks would have
7 been the 1988 announcement by the Ministry of Natural
8 Resources?

9 A. That's correct.

10 Q. Could you perhaps then undertake to,
11 as I said, give us a figure for this total updated if
12 it's significantly different from 240?

13 I notice there are many sites here. I am
14 interested in the aggregate number in the range of 240
15 megawatts, 200 megawatts. Could you advise us if
16 that's different but for now accept that range?

17 MR. FLOOK: A. Of course, there is a
18 number of sites on the Missinaibi River which is a
19 waterway park, also I noticed here.

20 MS. BASU ROY: A. That's right, the
21 entire Missinaibi would no longer be available for
22 development. It's a provincial waterway park.

23 Q. Maybe we should take those out
24 quickly and see what number we come up with and then
25 see if it's worth pursuing this question.

1 So if we take the Missinaibi we lose
2 about 5 megawatts; is that right, roughly?

3 A. Oh, no. Missinaibi has, it looks
4 like, about 30. There are nine sites.

5 Q. I'm sorry, I was looking at the wrong
6 table. You are looking now at -- what is the heading
7 of the table you are looking at, please?

8 A. Its table 24B, Moose River Drainage
9 Basin, Currently Known Sites with 2 to 10 Average
10 Megawatt Potential.

11 Q. Yes, I have got it.

12 A. Is that the table I should be looking
13 at?

14 Q. Yes, please.

15 There are actually two tables here.
16 There is 2 megawatts to 10 megawatts and then and then
17 there is under 2 megawatts. We will first look at 24B,
18 as you have suggested and we have...

19 Perhaps, Mr. Chairman, rather than take
20 up the hearing time, I will do the recalculations over
21 the break and I will come back with a number.

22 THE CHAIRMAN: I am not quite sure I
23 follow the point you are trying to make. You say that
24 there X number of megawatts in the Moose River drainage
25 basin region between 2 and 10 megawatts; is that what

1 you are saying?

2 MR. MONDROW: The point that I was trying
3 to make, Mr. Chairman, is that in Panel 5 we were told
4 by Mr. Brown that there are somewhere in the area of 50
5 megawatts for small hydroelectric NUG development in
6 the Moose River Basin.

7 THE CHAIRMAN: Under 2 megawatts you
8 said.

9 MR. MONDROW: That's right.

10 THE CHAIRMAN: But this is the people who
11 have 2 to 10, so it's a different standard.

12 MR. MONDROW: Certainly.

13 I guess I am trying to make the point
14 here that in fact if we look at Ontario Hydro's
15 definition of small hydroelectric, there are a lot more
16 megawatts available for small hydraulic development in
17 the Moose River Basin.

18 THE CHAIRMAN: You are not saying there
19 is an inconsistency between what Mr. Brown said and
20 what this table says. That's what I am trying to get
21 at.

22 MR. MONDROW: Not an inconsistency based
23 on the parameters given, but the concept, I think, that
24 we were trying to get at is how much is available for
25 small hydraulic NUG, and to that extent there is an

1 inconsistency in the concepts, and I am just trying to
2 clear it up. I am not saying that that answer was
3 incorrect; I am trying to get our concept across.

4 MS. HARVIE: With respect, Mr. Chairman,
5 I don't understand why this question wasn't put to Mr.
6 Brown. The question of how many NUGs in the Moose
7 River Basin are available for NUG development surely
8 would be an appropriate question for Panel 5.

9 MR. MONDROW: I think we did put the
10 question to Mr. Brown and the response we got was 50
11 megawatts under 2 megawatt facilities.

12 THE CHAIRMAN: Just so there is no debate
13 about it, what the question is, are you aware of any
14 small hydro potential of that sort of magnitude in the
15 Moose River Basin. The reply was, there are over 50
16 megawatts of sites under 2 megawatts that I have shown
17 in the NUG plan.

18 MR. MONDROW: Okay. I will come back
19 after lunch if it's appropriate to ask the question
20 about Ms. Basu Roy's evidence as to hydroelectric
21 potential in the Moose River Basin, but perhaps I
22 better take a closer look at the numbers before taking
23 anymore time.

24 Would that be acceptable, Mr. Chairman?

25 THE CHAIRMAN: Sure.

1 MR. MONDROW: Thank you.

2 Q. I understand, witnesses, that it is
3 Ontario Hydro's general position that small hydro is
4 best developed by non-utility generators, consistent
5 with what we have been discussing and what was
6 discussed this morning, that Ontario Hydro is geared
7 for large projects, and you confirmed, Mr. Snelson, for
8 Mr. Rodger that this was Ontario Hydro's policy; that's
9 correct?

10 MR. SNELSON: A. Yes, though there are
11 some exceptions.

12 Q. The point was made this morning, I
13 think, Mr. Snelson, by a response of yours, or it might
14 have been Mr. Flook, that you were talking about new
15 developments as opposed to redevelopments.

16 I would think, though, that a site best
17 developed anew by a NUG would also be best redeveloped
18 by a NUG. Wouldn't this be so?

19 A. Not necessarily.

20 Q. Why not.

21 MR. FLOOK: A. I think as I explained
22 earlier, any redevelopment or proposed redevelopment or
23 upgrading or repair, or whatever it is, an analysis is
24 done of the cost and then are compared to the avoided
25 cost, or the incremental avoided cost, and if they are

1 economical then they are carried out, and so far they
2 have been.

3 Q. But, Mr. Flook, we heard a second ago
4 that non-utility generators do small projects cheaper
5 than Ontario Hydro. Do you compare in your SHARP
6 program the cost for Ontario Hydro to rehabilitate or
7 redevelop to the cost that a NUG could do it for?

8 A. No. It would be what would be the
9 cost of the energy from that site if it was purchased
10 from a NUG afterwards, because the electrical user in
11 Ontario wouldn't see the benefit of the NUG person who
12 may be very good and be efficient and do whatever is
13 appropriate, and the other money goes in his pocket.
14 That's my understanding of how rates are set.

15 Q. Presumably Ontario Hydro buys power
16 from a NUG if it's cheaper than for Ontario Hydro to
17 generate it, that's correct, right? So, Hydro saves
18 and so the ratepayers save. That was Panel 5 --

19 A. Yes, I imagine Panel 5 discussed
20 that. I really don't know. But I would assume they
21 compare what they are purchasing from a NUG against
22 avoided cost also. If they can get it at avoided cost
23 or whatever their criterion is, they would purchase it.

24 Q. I am not clear then why you wouldn't
25 sell a site to be redeveloped or refurbished to a NUG

1 if a NUG could do it cheaper than Ontario Hydro could.

2 THE CHAIRMAN: This sounds to me an awful
3 lot like a Panel 5 discussion. You can ask about the
4 characteristics of hydraulic, who can do it and what
5 the costs are.

6 MR. MONDROW: With respect, Mr. Chairman,
7 we heard in this panel's evidence about the SHARP
8 program, the small hydro -- is it adjustment and
9 rehabilitation or...

10 Q. You know which program I am referring
11 to, Mr. Flook?

12 MR. FLOOK: A. Yes, I do.

13 Q. Small Hydro Assessment and Retrofit
14 Program is the proper name.

15 A. Correct.

16 Q. And you told us, Mr. Flook, that
17 there are 37 small and aging hydroelectric generating
18 stations, and you defined small there as under 10
19 megawatts, that Hydro was looking to decide whether it
20 was worthwhile for Hydro to redevelop or refurbish
21 those stations.

22 A. That's correct, yes.

23 Q. And my question is: Has Ontario
24 Hydro considered instead of redeveloping and
25 refurbishing those stations, selling them to the

1 private sector to do so, and your answer is?

2 A. My answer is, and this is back to
3 Panel 5, and I can't talk to how NUG rates are set, but
4 I understand they are against the avoided cost and the
5 rehabilitation programs are also assessed against
6 avoided costs. So you are looking at the same judgment
7 line, value line to compare what you are doing.

8 Certainly if Ontario Hydro can -- these
9 redevelopments can be done for less than the avoided
10 cost, cost/benefit ratio of less than one, then there
11 is a benefit to the power user to have that site
12 redeveloped by Ontario Hydro at that cheaper rate.

13 Q. And if a NUG can do it cheaper than
14 Ontario Hydro, isn't there is a further benefit to the
15 ratepayer?

16 A. I don't know the negotiations that go
17 on between a NUG and Ontario Hydro, but I don't know
18 that the NUG, if he does it cheaper, he is going to
19 offer Hydro the electricity at a lower rate.

20 Q. Has Hydro done any studies to
21 determine what amount of cash it would receive if it
22 were to sell these 37 sites that you plan on
23 redeveloping to the private sector?

24 A. The cash, no.

25 Q. Would half a billion dollars sound

1 about in the right ballpark?

2 A. I don't know.

3 - THE CHAIRMAN: I think this question was
4 dealt with earlier this morning. There is an
5 interrogatory about it. They have looked at all the
6 sites under the SHARP program, they consider them all
7 worthy of redevelopment, and they don't intend to sell
8 any of them up to this point. That was the answer this
9 morning.

10 MR. MONDROW: With respect, Mr. Chairman,
11 I am now asking if they had determined whether if they
12 were to sell them what amount of money --

13 [12:38 p.m.]

14 - THE CHAIRMAN: Well, they haven't
15 determined to sell any, so I don't know how they could
16 figure that out.

17 MR. MONDROW: Well, I guess, Mr.
18 Chairman, I am trying to get after what was behind that
19 determination, how closely did they look at that and I
20 am --

21 THE CHAIRMAN: Well, the reason was that
22 given the answer this morning was, that they had looked
23 at redevelopment and rehabilitation and decided to go
24 ahead with that.

25 MR. MONDROW: And I am asking

1 THE CHAIRMAN: They did say that if they
2 didn't think it was worth doing, they would try and
3 sell it.

4 MR. MONDROW: Q. Perhaps if I could ask
5 one question arising out of a response you gave this
6 morning, Mr. Flook. Mr. Rodger asked about the
7 relatively long lead time for your SHARP program.

8 In your opinion, could -- or Mr. Snelson,
9 perhaps in your opinion, could that lead time be cut
10 down if an alternative like selling the facilities to
11 the private sector were looked at?

12 MR. SNELSON: A. I don't know. I do
13 recall Mr. Brown indicating in Panel 5 that non-utility
14 generators -- installing small hydro projects were
15 taking longer than was originally anticipated with some
16 of their projects. Whether that would apply to
17 redevelopments as well, I don't know.

18 Q. Mr. Flook, this morning you said that
19 the SHARP program redevelopments were spread out due to
20 fiscal constraints in Ontario Hydro.

21 Absent those fiscal constraints, I take
22 it that there is nothing technically about those
23 projects that would prevent them from being developed
24 quicker, redeveloped quicker; is that correct?

25 MR. FLOOK: A. And there is not a need

1 to do them all today because they, of course, have
2 different ages. And in actual fact, you look at the
3 period of time -- their ages are coming up to, say, 90
4 or 100 years and then you put together a program. Some
5 of those sites are then done before perhaps that
6 90-year period and some are done afterwards, so it is
7 just spread out. It is just management of carrying out
8 a number of jobs.

9 Q. So then you wouldn't see cash flow
10 restraints as a restraint on your SHARP program
11 necessarily.

12 Are you saying that you develop them in
13 that time frame at any rate?

14 A. Yes.

15 Q. Regardless --

16 A. Our cash is only one of the resources
17 you are calling upon. The staff is another resource
18 you are using.

19 Q. So then fiscal restraints aren't
20 really a reason for an extended lead time or what was
21 characterized this morning as a pretty long lead time
22 for the SHARP program; is that correct?

23 A. The context in which they use lead
24 time, I can't comment on. The program is carried out
25 over a long period of time. It is just to have a

1 consistent orderly program.

2 Q. Indeed. And the reason you gave that
3 for this morning, I thought - and perhaps I am wrong,
4 you can correct me - was that the rehabilitation
5 program was spread out due to fiscal constraints; is
6 that not the reason?

7 A. Of constraints and resources, yes, of
8 many things; as I say, human resources as well as cash
9 resources. It is just good management to spread out
10 your work. All the sites don't have to be done today
11 and so you put together a program over a period of
12 time.

13 Q. Okay. Thank you. I would like to
14 move on to another topic. I would like to talk for a
15 minute about pumped storage.

16 I understand your evidence, Mr. Snelson,
17 to be that if the load shifting program that we heard
18 about in Panel 4 is successful, pumped storage wouldn't
19 be useful to Hydro's system; is that your evidence?

20 MR. SNELSON: A. Generally speaking,
21 that is correct, yes.

22 Q. I remember from Panel 4 that load
23 shifting is designed to flatten load; that is, to shift
24 patterns of energy use so that the load at times of
25 peak and the load at times off-peak if taken right

1 across the board is relatively flat; that is the
2 objective of load shifting?

3 A. That is to move in that direction. I
4 don't believe that they would go quite as far as
5 completely flattening the load shape. The interest is
6 to go to the point where the load on thermal generation
7 is flattened because there are already peaking
8 resources, peaking hydroelectric resources, on the
9 system which, if you were to further flatten the load
10 would not be fully utilized. They have that
11 capability.

12 Q. And, in fact, load will never be
13 flat, will it? There will still be sudden, short-lived
14 peaks either unexpected or due to unexpected outages?
15 There will be some variation inevitably in the load
16 shape; that's correct?

17 A. Yes.

18 Q. Load shifting doesn't deal with those
19 kinds of temporary unexpected problems or temporary
20 increases in demand. Load shifting is a pretty
21 blunt-edged instrument for shaping demand; that's
22 correct?

23 A. Load shifting is a good way of
24 generally raising the nighttime load so as to lower the
25 daytime load. It can't be adjusted usually on an

1 hour-by-hour or minute-by minute basis, though there
2 are some load shifting technologies that may be able to
3 do that.

4 Q. But pumped storage can be an adjusted
5 on an hour-by-hour base if I understand it; is that
6 correct?

7 A. That's correct.

8 Q. So pumped storage would still be
9 useful to deal with these kind of load shape
10 characteristics or problems depending on your point of
11 view; is that correct?

12 A. There may be other resources on the
13 system that can already do that job.

14 Q. What do you use for doing that now;
15 it is coal, isn't it, fossil fuels?

16 A. I believe that we use partly our
17 fossil system and partly our hydraulic system to follow
18 changes in load.

19 Q. And if this Board were to conclude at
20 the end of the day that you shouldn't use your fossil
21 system to do that, you should use something else,
22 pumped storage would be that something else -- could be
23 that something else; is that correct?

24 A. The hydraulic system already has some
25 capability to do that and I don't know any reason that

1 would lead one to conclude that one shouldn't have some
2 load following capability in the fossil system.

3 Q. Okay. Thank you.

4 THE CHAIRMAN: I am sorry, I didn't quite
5 follow that last answer.

6 MR. SNELSON: I believe that there are
7 good reasons for having load following capability in
8 the fossil part of the system.

9 THE CHAIRMAN: But I thought Mr.
10 Mondrow's hypothesis was that you might think so but we
11 mightn't and what would do you then?

12 MR. SNELSON: And I think I perhaps
13 evaded that question. (Laughter)

14 Pumped storage could do the job. It may
15 be possible to do it from increased load following in
16 the hydraulic part of the system.

17 MR. MONDROW: Q. Mr. Snelson, I would
18 like to talk about planning and I would like to clarify
19 something. If you could turn up Exhibit 28 again,
20 please, the 1989 hydraulic plan. It is page 10.

21 Here on page 10 we see factors considered
22 in making judgments about which sites to include in
23 practical potential. We have been on this page before.
24 I want to go to some of the bullets here, three in
25 particular. One says, "electricity demand in different

1 regions of the province". One says, "site location"
2 and in brackets it says, "on the river and within the
3 province". And then a couple - about four down, it
4 says, "transmission requirements in terms of the
5 location from load centres and possible benefits in
6 relieving transmission bottlenecks and enhancing system
7 reliability".

8 Now, each of these three criteria that I
9 have just read out, it seems to me, dictate where to
10 put a hydraulic facility or perhaps more accurately,
11 which potential hydraulic sites to develop; is that
12 fair?

13 MR. SNELSON: A. Can I just first put
14 this page into perspective?

15 Q. Please.

16 A. And that is that this was a set of
17 factors that were listed as being determining factors
18 in determining the hydraulic plan. That was at a time
19 that we had a more specific plan than we have today.

20 While many of these factors are somewhat
21 relevant to determining the attainable potential, then
22 this isn't specifically our list of factors for
23 determining the attainable potential.

24 Q. Okay, but it is a list of factors
25 that you use in hydraulic planning?

1 A. Yes.

2 Q. Okay. That is where I am a little
3 bit confused because everything that I have read from
4 Ontario Hydro's documentation seems to tout the
5 advantages of river basin approach to development,
6 which to me means the development of all appropriate
7 sites in a given area.

8 That is what the river basin approach is,
9 isn't it; you take a river basin and you develop that
10 area?

11 A. I think the river basin approach is
12 that when you go into a river basin and you are
13 considering developing one or more sites in that basin,
14 then you look at it as a co-ordinated set of
15 developments and look at their interrelations and
16 interactions so as to try and come up with an orderly
17 way of doing whatever developments might prove to be
18 economical in that area.

19 Q. Within the basin?

20 A. Within the basin.

21 Q. But under the river basin approach
22 then, you wouldn't develop sites according to where in
23 the province the demand was. You would develop sites
24 in one of the identified basins.

25 And similarly, it seems to me, you

1 wouldn't develop where there was transmission; rather,
2 you would develop the basin and then you would put the
3 transmission in place to bring the power out of that
4 basin; is that fair?

5 A. Clearly, if one is considering where
6 to develop hydroelectric generation, then the proximity
7 to transmission or the proximity to load is a factor
8 whether you are looking at a site or a river basin.

9 Q. Well, let's look at another paper
10 given in response to Interrogatory 6.14.45. It is the
11 proposal for hydroelectric power development, the Moose
12 River drainage basin. It is report No. 88826. Bear
13 with me for a second while I find my copy.

14 The proposal, the development proposal is
15 summarized starting at page 1 and I would like to look
16 at something on page 2, please.

17 THE CHAIRMAN: Okay. Now again, could
18 you identify - does page 2 start with the words "the
19 proposal to continue"?

20 MR. MONDROW: Yes, sir.

21 THE CHAIRMAN: Okay.

22 MR. MONDROW: Q. And I would like to go
23 - down to the third paragraph. We see a discussion in
24 that paragraph and in the next paragraph of how the
25 Moose River Basin developments will be incorporated

1 onto the bulk electricity system. And it seems to me
2 those paragraphs are describing building new
3 transmission which brings power out of the basin.

4 That is what it says there, Mr. Snelson?
5 That is what it is talking about?

6 MR. SNELSON: A. Can I just read this--

7 Q. Please.

8 A. --because I am not familiar with this
9 particular document.

10 Q. I am starting at the third paragraph
11 where it says:

12 The incorporation of requirements for
13 the new generating sites are more
14 extensive and less well defined.

15 A. Yes. And what was your question?

16 Q. Well, I guess my bottom-line question
17 is, it doesn't seem to me that three decision-making
18 criteria which you have told me you use in planning
19 mesh very well with this river basin approach.

20 You are not locating sites proximal to
21 transmission or load. You are building up a river
22 system and then bringing the power out; is not correct.

23 MS. HARVIE: I am sorry to interrupt, Mr.
24 Chairman. These, as Mr. Snelson has explained, are
25 factors that are used in the selection of sites and

1 were formerly a part of our evidence when we had a
2 hydraulic plan consisting of a list of sites and a
3 development schedule.

4 In light of the Board's ruling, we have
5 revised our evidence and clearly, this is no longer
6 relevant.

7 MR. MONDROW: With respect, Mr. Chairman,
8 Mr. Snelson, Hydro's witness, just gave me an answer
9 that these are, in fact, criteria used in hydroelectric
10 planning. And my impression is that that is what we
11 are talking about on this panel.

12 MS. HARVIE: No. Mr. Chairman, we are
13 discussing attainable potential and the characteristics
14 of the hydroelectric option. It is not our
15 understanding that we are talking about hydroelectric
16 planning in the sense of site selection criteria and
17 that is what these are.

18 THE CHAIRMAN: Well, as I understand the
19 question to be, there seems to be an inconsistency
20 between the two to three factors mentioned on page 10
21 and this paragraph here. That is this question.

22 MS. HARVIE: There may well be, Mr.
23 Chairman.

24 THE CHAIRMAN: But Ms. Harvie, I heard
25 you, what your submissions were, but I think I would I

1 would let Mr. Snelson answer that question.

2 [12:55]

3 MS. HARVIE: If I may say one more thing,
4 Mr. Chairman. I think this is extremely prejudicial to
5 Ontario Hydro's interest to be pursuing this particular
6 line of cross-examination.

7 This will be dealt with in a process
8 outside of this hearing in my submission. It's
9 inappropriate that we be pursuing it here.

10 THE CHAIRMAN: I'm going to ask Mr.
11 Snelson to answer the question.

12 MR. SNELSON: I believe that I did say in
13 my direct evidence - and I was just looking for the
14 reference and I couldn't find it quickly - that sites
15 that are remote from the transmission system may be
16 uneconomical to develop, but that if you develop
17 several sites in the same area and they can thereby use
18 shared transmission, that the economics may improve
19 over the development of the sites individually.

20 I believe that those sets of statements
21 are correct and that they are consistent with a river
22 system development.

23 MR. MONDROW: Q. Sir, when you said
24 those sets of statements, you mean the three that I
25 referred to?

1 MR. SNELSON: A. No, what I just
2 reiterated from my direct evidence. I believe those
3 statements are correct, and that they are consistent
4 with the concept of river system development.

5 Q. And, Mr. Snelson, are the three
6 bullets that I spoke about a few minutes ago from
7 Exhibit 28 consistent with river basin development
8 approach as planning criteria?

9 A. The three specific bullets that you
10 were looking at were?

11 Q. Electricity demand in different
12 regions of the province, site location on the river and
13 within the province, and transmission requirements, et
14 cetera.

15 A. Recognizing that different factors
16 will carry different weights in different particular
17 decisions according to how impacted that factor is,
18 then those are still factors that are used at the stage
19 of selecting and ordering specific hydroelectric sites.

20 Q. And are you saying now selecting and
21 ordering within a basin that is decided will be
22 developed?

23 A. I think these are very general
24 factors. I think they're applicable to both.

25 Q. Thank you.

1 THE CHAIRMAN: Perhaps, if it's not
2 inconvenient we could stop now and come back at 2:30.

3 MR. MONDROW: Certainly, Mr. Chairman.

4 THE REGISTRAR: Hearing will adjourn
5 until 2:30.

6 ---Luncheon recess at 12:58 p.m.

7 ---On resuming at 2:30 p.m.

8 THE REGISTRAR: Please come to order.
9 This hearing is again in session. Be seated, please.

10 THE CHAIRMAN: Mr. Mondrow.

11 MR. MONDROW: Mr. Chairman, I should
12 advise of two things: I understand that the panel does
13 have complete double-sided copies of Exhibit 415 and,
14 with Ms. Harvie's assistance, the witnesses now also
15 have complete copies and, in addition, there are copies
16 which I've checked individually, they are all complete
17 and they are on the table here if anybody else would
18 like.

19 And the second administrative matter is
20 we are on schedule and should finish by the afternoon
21 break.

22 THE CHAIRMAN: Thank you.

23 MR. MONDROW: Q. Ms. Quinn, could you
24 please turn up Volume 83 of the transcript, page 14792.
25 Actually if we could start on the preceding page 14791,

1 starting at line 23, you were asked about the
2 methodology for the environmental analysis.

3 And then if we can go over to page 14792,
4 you answered that Ontario Hydro actually conducted its
5 own think tank. You also said that you used
6 consultants to help you with that. Could you tell me
7 who the consultants were?

8 MS. QUINN: A. Yes. In fact, it was
9 just one person and I can give you the name, the
10 individual sat in on meetings where we were discussing
11 the methodology for the environmental analysis and the
12 person's name is David Lawrence.

13 Q. David Lawrence?

14 THE CHAIRMAN: Sorry.

15 MS. QUINN: Lawrence.

16 MR. MONDROW: Q. And you said that Mr.
17 Lawrence sat in on the meeting where you were
18 discussing the methodology?

19 MS. QUINN: A. There were people who
20 were involved in the preparation of the environmental
21 analysis document and they met over a period of time to
22 discuss how they would put the document together and I
23 know Mr. Lawrence was involved in some of those
24 discussions.

25 Q. Well, at the transcript excerpt that

1 I've referred you to you referred to the environmental
2 assessment methodology.

3 A. Yes.

4 Q. And the think tank involved in that.

5 A. Yes.

6 Q. Is that what we're talking about?

7 A. That's correct.

8 Q. Mr. Lawrence, or the consultant
9 didn't file any written material, as I understand it;
10 is that correct?

11 A. He gave his comments on the draft.

12 Q. Written comments?

13 A. Pardon me?

14 Q. Were they written comments?

15 A. They probably were, and I know that
16 people were putting things down on paper at different
17 points in time and he fed some ideas back.

18 Basically he was involved in the early
19 stages of preparing the document, and so I don't know
20 what part of the final document would have been
21 influenced by him in particular.

22 Q. Are Mr. Lawrence's comments filed
23 anywhere in this proceeding that you know of?

24 A. No, I don't believe they are.

25 Q. Could we get an undertaking to have

1 those comments filed?

2 MS. HARVIE: Well, Mr. Chairman, as the
3 witness has advised, they were commentary on a draft
4 exhibit which has been filed, which is the
5 environmental analysis. That is the corporate
6 position, it's been filed, we're relying on it. I
7 don't see what use there is in filing drafts or
8 commentary on drafts.

9 MR. MONDROW: Well, Mr. Chairman, I'll
10 withdraw the request.

11 Q. Ms. Quinn, I understand your evidence
12 to be that the environmental analysis is the only
13 written output of that think tank process that you're
14 referring to here; is that correct?

15 MS. QUINN: A. Yes. Well, the group of
16 people that met, met specifically to prepare that
17 document, the environmental analysis.

18 Q. And there is no separate written
19 output as to environmental assessment methodology
20 arising out of that think tank?

21 A. No. I think it's Chapter 3 that sets
22 out the methodology.

23 Q. When was the think tank held, Ms.
24 Quinn?

25 A. Actually a group of people that

1 probably met over a period of three or four months.

2 Q. Could you tell me what those months
3 were, please?

4 MS. HARVIE: Mr. Chairman, why does this
5 matter? I'm sorry, I'm hard pressed to understand why
6 whether they met in July or September makes the
7 slightest bit of difference.

8 MR. MONDROW: Well, Mr. Chairman, with
9 respect when I get the answer, my next question will
10 show why it makes a difference.

11 MS. QUINN: I believe it would have been
12 during the summer of 1989, and I don't know when it
13 would have started and I'm not sure when it would have
14 ended. I think I remember hearing about it
15 specifically during the summer months.

16 MR. MONDROW: Q. So it would be around
17 spring, summer, fall '89; is that correct?

18 MS. QUINN: A. I doubt that it would
19 have been as early as spring but it might have been, it
20 depends, if you're thinking of April and May. It would
21 have been probably during the summer, it might have
22 gone into September.

23 Q. In September of 1989 Ontario Hydro
24 was drafting its environmental analysis, its DSP
25 documents; is that right?

1 A. Yes, that's the only thing I'm
2 referring to that particular document. Is that what
3 you're --

4 Q. This question in the transcript
5 refers to environmental methodologies and analysis of
6 those and the integration of those into Ontario Hydro's
7 environmental analysis methodology.

8 A. Yes, that's right. It only pertains
9 to this particular document, which is Exhibit 4, that
10 all of my comments refer to.

11 Q. So I understand there was no think
12 tank then or any other process to derive an
13 environmental assessment methodology in advance of
14 writing the DSP documents; is that correct?

15 A. Well, I think they were concurrent.

16 Q. You were writing the DSP and you were
17 deriving your methodology for assessment concurrently?

18 A. Well, first of all, I'm only speaking
19 about Exhibit 4, I'm not talking about the Balance of
20 Power which is another exhibit.

21 Q. Okay.

22 A. And while people were preparing this
23 particular report, they were talking about how it would
24 be structured, how they would fit in various pieces and
25 so on, and so there isn't anything separate from this

1 particular document that is part of my discussion.

2 Q. Okay, thank you. Mr. Flook, could
3 you turn to Volume 68 of the transcript, please, page
4 12219.

5 This is transcript from cross-examination
6 of Panel 5 by Mr. Shepherd for IPPSO and if you look at
7 line 22, please -- actually, if we go back up to line
8 17 on that page, Mr. Shepherd asks:

9 "Why wouldn't you consider...", he's
10 talking to Mr. Vyrostko here,

11 "Why wouldn't you consider a proposal
12 that where a private developer says, I
13 will take this, I will give you a big
14 cheque for it and I will upgrade it so
15 you will have more capacity, why wouldn't
16 you consider that?

17 Mr. Vyrostko's answer was:

18 "Well, in fact, we have a program...in
19 Hydro that looks at all of these
20 facilities and is looking at what the
21 costs would be of maintaining the
22 facilities and/or rehabilitating
23 facilities."

24 That's your SHARP program; is it not, Mr.

25 Flook?

1 MR. FLOOK: A. I'm sorry, I don't see
2 those words here.

3 Q. I'm looking at Volume 68 of the
4 transcript, page 12219.

5 A. Excuse me.

6 Q. 12219. I'm sorry if I gave you the
7 wrong page.

8 If you look at line 22 Mr. Vyrostko is
9 talking about a program there that looks at what the
10 costs would be of maintaining the facilities or
11 rehabilitating the facilities. That's the SHARP
12 program; is it not, Mr. Flook?

13 A. It's one of the rehabilitation
14 programs, yes, SHARP is.

15 Q. And then on page 12220 Mr. Vyrostko
16 says:

17 "If, in fact, there was an advantage
18 to turn it over to the private sector, we
19 would be making that decision."

20 Now, I asked you before lunch, Mr. Flook,
21 some questions about SHARP and I understood your
22 response to be that you don't consider and haven't
23 considered selling those facilities to the private
24 sector.

25 Could you reconcile the testimony that

1 I've just read to you with your answer this morning?

2 A. No, I don't believe I said that and I
3 believe in my direct evidence I said that each of these
4 programs -- the rehabilitation or the program proposed
5 would be analyzed against avoided cost and then a
6 decision made based upon that.

7 I believe in the direct evidence I said
8 that if the do nothing alternative or the appropriate
9 way, or it was not cost effective, that Ontario Hydro
10 would look at other alternatives.

11 Q. Well, if we can go back to page
12 12220, I'll read starting at line 1 again:

13 "If, in fact...", Mr. Vyrostko says,
14 "...there was an advantage to turn it
15 over to the private sector, we would be
16 making that decision."

17 I take it from your response that that is
18 not part of the analysis you go through in the SHARP
19 program?

20 A. Yes. When you put together a program
21 and estimate the costs and get a cost/benefit ratio for
22 comparing it against avoided cost, then if it's less
23 than one you say, gee, it's worth it, I'll undertake
24 it; if it was greater than that, then Ontario Hydro
25 would have to look at what the alternatives are.

1 Perhaps the first decision process would
2 be to do something less than what was initially
3 proposed, and if the cost/benefit was over one, then
4 the decision of making the site available to a private
5 developer would be looked at.

6 Q. Just one more question, please. Does
7 this avoided cost that you compare to include the cash
8 that you would get if the site was auctioned to a
9 private developer, does it include the value of the
10 redevelopment that would then be incurred, the costs of
11 which would be incurred by the private developer?

12 I'll clarify my question. You said a
13 minute ago that you take the facilities in the SHARP
14 program and compare rehabilitation and redevelopment to
15 avoided cost. My question is: Does the avoided cost
16 that you compare the redevelopment and rehabilitation
17 costs to include the cash benefit to Hydro of selling
18 that facility to the private sector and having the
19 private sector pick up the tab for the redevelopment or
20 rehabilitation?

21 A. I don't know the exact details of the
22 analysis. I believe the Ontario Hydro experience is
23 that when you are looking at making the site available
24 to a private developer that -- and the one case that
25 Ontario Hydro did it, people actually wanted money to

1 take it off, to obtain the site and, therefore, then
2 there's not much of a cash benefit there.

3 Q. I take it your answer is no or your
4 answer is you don't know?

5 A. I don't know the details but the
6 experience of Hydro so far has been that in actual fact
7 people wanted money to take the site.

8 Q. I would like to turn to the general
9 topic of resource evaluation please, witnesses. Mr.
10 McCormick, you've a number of times in your evidence
11 emphasized that there are no generic impacts of
12 hydroelectric development, it's too site-specific; is
13 that right?

14 MR. MCCORMICK: A. Those aren't my words
15 but that approximates what I said.

16 Q. In your screening process you decided
17 that the topography of certain rivers creates a greater
18 potential for flooding which justifies screening out
19 sites on those rivers. Isn't that a generic impact Mr.
20 McCormick?

21 [2:45 p.m.]

22 A. That was not the sole basis for
23 eliminating those refers. There were three factors
24 that are resulted in the exclusion of the northern
25 rivers.

1 Q. It was one of the factors, though,
2 wasn't it?

3 A. It was a factor.

4 Q. Is that not a generic impact?

5 A. Not in the sense that I think it's
6 been used.

7 Q. In what sense is it a generic impact?

8 A. Generic impact, I guess, refers to
9 something common to all rivers, that you would go to
10 look at all river basins and make some judgments as to
11 whether it could be excluded on that basis or not, and
12 we didn't use it in that way.

13 Again, we took a particular situation
14 that didn't require a lot of site-specific information.
15 We knew the topography in that general area. We had a
16 sense even before we quantified it that there would be
17 an enormous amount of flooding.

18 To do it on any other level would have
19 required site-specific information and actual
20 measurements. And again because it was two orders of
21 magnitude greater than other areas, it stood on its own
22 merits.

23 Q. In fact, you could, if you wanted to,
24 apply the same reasoning to screen out sites based on
25 the demography of an area; for example, river dependent

1 downstream communities, Aboriginal communities. That
2 could be a criteria for screening out a generic impact
3 of hydroelectric development, couldn't it?

4 A. You again would have to look at the
5 specific circumstances of each site, what the effects
6 were on the peoples involved and what could be done to
7 mitigate them.

8 Q. You didn't do that with the flooding
9 criteria, did you, Mr. McCormick?

10 A. No. I think one of the points that I
11 didn't mentioned and I have mentioned several times in
12 earlier testimony was when you have got such a large
13 area as 8,000 hectares, it's not reasonable to assume
14 that one could go and be able to mitigate that kind of
15 flooding effect, where there are opportunities for
16 smaller scale flooding to mitigate it. And I think we
17 would argue very strongly that site-specific
18 environmental assessments are the only way one can
19 examine that effect and determine what can be done and
20 how significant the result would be.

21 Q. When I suggested the exclusionary
22 criteria of river-dependent downstream communities, is
23 your evidence that that is something that can be
24 mitigated and so need not be or could not be a generic
25 impact for exclusionary purposes?

1 A. I think you would want to look at all
2 the particular effects. It may indeed be a factor that
3 would warrant not proceeding with a particular
4 development, but you would certainly want to look at
5 the site-specific circumstances to make those
6 judgments. You bring all the information to bear and
7 make your judgment based on that and not broad
8 generalizations.

9 Q. Well, I would suggest to you, Mr.
10 McCormick, that you do make broad generalizations for
11 exclusionary criteria, for instance flooding, that
12 Ontario Hydro feels are severe enough impacts to
13 exclude sites, and you do make judgments on those
14 generic impacts that are not severe enough, in your
15 view, to exclude sites except at the site-specific
16 level, for instance the impacts on Aboriginal
17 communities downstream or operational modes like
18 peaking versus run-of-the-river.

19 Could you respond to that?

20 A. We feel the exclusion of the northern
21 rivers involve several factors, the flooding aspect of
22 it is common sense. It is just such an enormous amount
23 of land that's affected.

24 We have attempted in our testimony on
25 other aspects to provide some characteristics of

1 hydroelectric development that we felt that the panel
2 should be aware of and consider in their examination of
3 the subject matter. And as we have said, the effects
4 of hydroelectric developments are very site-specific.
5 You can find exceptions to everything, but as a general
6 rule what we have presented is a common sense -- it is
7 easily defensible in my view by virtue of many examples
8 and stands on its merit.

9 Q. Doesn't this represent Ontario
10 Hydro's judgment that flooding and parks are common
11 sense exclusionary criteria whereas impact on
12 Aboriginal communities or operational modes aren't
13 common sense exclusionary criteria?

14 A. The two that you have mentioned
15 warrant further study on a site-specific level,
16 particularly the effects of peaking versus
17 run-of-the-river, or whatever you will. They are
18 alternative methods of carrying out a development.

19 When one goes geese into a study, I would
20 argue that it is important to look at the relative
21 advantages and disadvantages of those options and make
22 your judgments rather than automatically going in
23 saying, well, run-of-the-river is the only common sense
24 way to go, and without comparing it to any options and
25 any consideration of incremental impacts, maybe you

1 haven't conducted a fair examination.

2 Q. Well, Aboriginal communities might
3 come to you, Mr. McCormick, mightn't they, and say, "We
4 don't want you to alter our river and that's common
5 sense to us"?

6 A. Yes. And we would hope to be able to
7 work with them to find out the basis for those concerns
8 to see whether they can indeed be mitigated.

9 Q. So you would agree, I think, that it
10 is a value judgment as to what factors are common sense
11 enough to apply as broad exclusionary criteria and what
12 factors are not broad enough to so apply at the
13 planning level, but are rather issues to be dealt with
14 at the site-specific level; is that not a judgment
15 depending on your point of view?

16 A. Yes.

17 Q. Thank you. And the choice of
18 screening criteria at the planning level will, of
19 course, decide what sites are considered developable
20 and what capacity number you come up with at the end of
21 that broad exclusionary exercise; that's right, isn't
22 it?

23 A. Would you repeat that, please?

24 Q. The choice of broad exclusionary
25 criteria will of course decide what sites or what areas

1 are excluded from attainable potential and so what
2 number results at the end of the application of those
3 criteria; is that correct?

4 A. That's true.

5 Q. I would like to get a little more
6 specific now.

7 Ms. Basu Roy, I would like to ask you few
8 questions and perhaps we could use page 36 of Exhibit
9 362 which is your overhead package just as an anchor
10 for these questions, I'll try to keep the numbers
11 straight.

12 THE CHAIRMAN: 26, did you say, Mr.
13 Mondrow?

14 MR. MONDROW: Page 36, Mr. Chairman, of
15 Exhibit 362.

16 THE CHAIRMAN: Thank you.

17 MR. MONDROW: If you will just bear with
18 me, I will get my copy out as well.

19 Q. This is the overhead entitled
20 "Summary of Hydroelectric Potential in Ontario." I
21 just want to be able to refer to these numbers as I ask
22 you these questions.

23 The total theoretical potential, Ms. Basu
24 Roy, is derived from Exhibit 82, I understand, which is
25 the 1987 inventory of hydroelectric power resources in

1 the Province of Ontario; is that right? The number at
2 the top there is total theoretical potential, 20,777
3 megawatts?

4 MS. BASU ROY: A. You don't find that
5 number in the 1987 inventory report.

6 Q. No. But the basis for this number is
7 that inventory.

8 A. Yes, plus there are several pieces of
9 information that update it, Exhibit 82.

10 Q. In fact, all of the numbers on this
11 chart are based on that inventory as modified by
12 additional information that Ontario Hydro receives or
13 goes out and gets, but the basis for all these numbers
14 is that inventory and that methodology; is that
15 correct? Is that fair?

16 A. Essentially, yes.

17 Q. Okay. I would just like to start
18 then with a few questions about the methodology used in
19 deriving that inventory. The methodology is described
20 starting at page 12, and you need not turn that up for
21 now, I want to keep that pretty basic, we will go to it
22 in a minute, unless you want to, of course.

23 My understanding is - and I will ask you
24 to confirm this - that for developed sites the report
25 simply took the known numbers, the known capacity at

1 those sites. That's the easy part. That's right,
2 isn't it?

3 A. I am sorry, page 12, what --

4 Q. It starts at page 12, but page 12 and
5 onwards describes the methodology.

6 A. Is that Exhibit 28?

7 Q. Of Exhibit 82, I'm sorry, which is
8 the inventory.

9 My understanding is that for known and
10 developed sites to get the capacity values for those
11 sites, you simply take the numbers from those sites. I
12 am just starting at the basis upon which you add up and
13 find the total resources.

14 A. Okay, I am with you.

15 Q. So far we are okay.

16 Now, for undeveloped or underdeveloped
17 sites you can't just see what is actually operating
18 there. The numbers are calculated based on estimates,
19 I understand, of available flow and probably
20 developable head at each site; that's right?

21 A. That's correct.

22 Q. And developable head is sometimes
23 available from actual hands-on measurement but often
24 it's not, and so I understand that developable head in
25 those situations where it's not readily available is

1 extrapolated from looking at contour maps; is that your
2 understanding?

3 A. Yes. And I believe Mr. Flook
4 elaborated upon that methodology in his direct
5 evidence.

6 Q. Yes.

7 I believe, Mr. Flook, that you also said,
8 or if not perhaps you can say now, that when you derive
9 developable head from contour maps, what you get from a
10 contour map is the general elevation differences in the
11 area of the site and not necessarily concentrated at
12 that specific site. So you get a general idea of the
13 head available in the area but it's not all at that
14 site; it's kind of a little wider net that you cast, is
15 that correct?

16 MR. FLOOK: A. For sites...

17 Q. I can rephrase the question if it's
18 easier.

19 A. Please.

20 Q. Perhaps it didn't come out very
21 clearly.

22 I think it is a simple point. I am just
23 asking you, when you look at the contour maps to derive
24 the developable head, you probably get from the contour
25 map an idea of the drop in elevation in the general

1 vicinity of the site and not necessarily on the site.

2 A. That is correct, yes.

3 Q. I'm sorry, I confused you.

4 Now, when it comes to flow data, there
5 are various sources of flow data, Ms. Basu Roy, and
6 when available they are matched with the head
7 developable estimates to derive the capacities for
8 those sites in the inventory. You have said I think it
9 is the Ministry of Natural Resources has a huge data
10 base on flows, and Ontario Hydro certainly on rivers
11 where it has facilities has information on flows.

12 So, when you know the flows, you take the
13 flows, you match it the developable head that we either
14 get from the contour maps or measure and you get the
15 capacities that way?

16 A. That's the general concept, yes.

17 Q. Now, where actual stream flow data is
18 not available, my understanding of the methodology is
19 that flows are estimated by multiplying the drainage
20 area of the specific drainage basis with something
21 called the run off coefficient, and the run off
22 coefficients are also particular to the specific
23 basins.

24 Could you just briefly describe for me
25 what a run off coefficient is, the concept?

1 A. I believe I discussed it in the
2 direct evidence. The idea is that based upon studies
3 you are looking at -- a coefficient is developed that
4 you then can apply the area, apply to the area upstream
5 of the potential site and generate a flow, assumed
6 flow, average flow.

7 Q. Okay. Could you turn, please, to
8 page 4 of Exhibit 82. I want you to just confirm for
9 me, please, on the record the last line of text on that
10 page which says:

11 Even so, a substantial number of
12 potential sites may have been left out of
13 the tabulations. Sometimes an entire
14 river system may have been omitted.
15 That statement is still true?

16 A. I think the author was being very
17 cautious, yes.

18 Q. Is it fair to say that the
19 methodology produces a fairly rough cut of theoretical
20 purposes?

21 A. For inventory purposes--

22 Q. For inventory purposes.

23 A. --it's realistic. As you say, a
24 rough cut. Generally accepted as a manner of
25 generating inventories.

1 Q. Okay, fair enough. Back to page 36
2 then of Exhibit 362.

3 THE CHAIRMAN: I take it, perhaps unless
4 of course you have missed any sites, that the
5 theoretical potential would be higher. Would that be
6 right?

7 MR. FLOOK: I think you could
8 characterize it that if you have missed them they are
9 not generally large sites. And yes, there could be a
10 number of smaller sites that you then didn't add to the
11 total but then would have been excluded back down again
12 as a smaller site.

13 THE CHAIRMAN: But if you haven't
14 actually assessed the contours, that could either
15 adjust the theoretical potential both up or down, I
16 suppose.

17 [3:00 p.m.]

18 MR. FLOOK: I don't believe a 5 megawatt
19 site would suddenly become a 500 megawatt site.

20 THE CHAIRMAN: All right.

21 MR. MONDROW: Q. I want to talk about
22 the first exclusion category in your summary of
23 hydroelectric potential in Ontario, small hydro.

24 And your evidence tells me that there are
25 987 megawatts of small hydro that are excluded. And

1 you talked about this at transcript Volume 83, starting
2 at page 14656. You probably need not turn it up. I
3 will tell you what I am interested in.

4 At line 18, for the record, you said that
5 most of this potential is identified - this is Ms. Basu
6 Roy, I believe - at new sites which number in the
7 hundreds across the province.

8 Do you remember giving that testimony,
9 Ms. Basu Roy?

10 MS. BASU ROY: A. I am not too sure of
11 the exact number there, but it sounds familiar, yes.

12 Q. Hundreds is a pretty rough number, so
13 that is something that you will agree with?

14 A. Yes.

15 Q. You can turn it up if you would like
16 to check it.

17 A. No, I think it is fine. I remeber
18 it.

19 Q. I would like to get out Exhibit 364,
20 please, which is a map - one of two maps - and this is
21 the map that is labelled, "potential new hydroelectric
22 generation". And it is up there in the corner, to the
23 right -- well, to my right of the witnesses.

24 If I understand Exhibit 364, the sites
25 that are counted in the inventory are all marked with

1 little triangles on the maps. These are the potential
2 sites.

3 Am I reading the map correctly?

4 A. The triangles are denoting new
5 undeveloped sites.

6 Q. Right. Something I noticed about
7 this map when I first saw it, if we go to the mouth of
8 the Moose River flowing into James Bay and we draw a
9 very rough line across to the west of the map and then
10 we jog up at the end, below that line, there is a lot
11 of little triangles on the map and above that line, it
12 seems to me, there is a noticeable dearth of little
13 triangles.

14 Can you explain that to me, what that
15 means?

16 MS. HARVIE: The witnesses may know
17 jogging over a little to the left and up a bit, where
18 that takes us on this map of northern Ontario, but I
19 have no idea.

20 MR. MONDROW: Do you not see a line -- I
21 am sorry.

22 Mr. Chairman, I am positing that there is
23 a line below which there is a lot of triangles and
24 above which is looks pretty empty.

25 Q. Ms. Basu Roy, can you see those two

1 areas that I am referring to? I am not going to pick
2 individual triangles. I am just asking generally, on
3 the north part of that map, it looks pretty sparse and
4 on the south part of the map, it looks fairly dense.

5 Can you see that distinction when I point
6 it out?

7 MS. BASU ROY: A. Well, I can see more
8 triangles, I guess, indicated in one section of the
9 province over the northern part.

10 Q. Ms. Basu Roy, isn't it basically true
11 that we just don't know what is up there in the north;
12 that is, we know a lot about what is in the south part
13 of the province and so there are a lot of triangles.
14 And in the north, there are some triangles on some
15 major tributaries, but basically, there's a lot up
16 there that we don't know about, a lot of river systems
17 and potential that we don't know about; isn't that
18 right?

19 A. I am not too sure if I can arrive at
20 that conclusion from just looking at the concentration
21 of the triangles. I don't know --

22 Q. Okay. Well, let's go back to Exhibit
23 82 then and maybe I can help you a bit.

24 We have already said we have already
25 looked at that caveat that the author put in at page 4,

1 that there could be a considerable number of sites left
2 out and maybe even entire river systems.

3 And just to pick up on that theme, could
4 we turn to page 13 of Exhibit 82? And I just want to
5 use this key for a second because I will be moving on
6 in the exhibit, but this key demarcates river basins or
7 river drainage areas.

8 The part of the map that I was trying to
9 refer to a minute ago, the part of Exhibit 364, roughly
10 corresponds to drainage basins or areas 9, 10 and 11
11 some of area 12 perhaps, but we can just focus on 9, 10
12 and 11 for now, which are the Attawapiskat River, the
13 Winisk River and the Severn River.

14 Do you see that, Ms. Basu Roy?

15 A. Yes, I see them.

16 Q. Okay. Could we turn to page 113
17 then, please, of Exhibit 82? Page 113 talks about the
18 first of those areas, which is the Attawapiskat River,
19 drainage area 9 on that key. And there is a big
20 paragraph of text. And if you just go to the last
21 sentence in that paragraph, it says:

22 Unfortunately drainage areas and
23 topographic and flow information are
24 lacking for most of the remaining rivers
25 and tributaries; and hence, no potential

1 sights have been identified on them.

2 And do you see that, Ms. Basu Roy?

3 A. Yes, I see that.

4 Q. Okay. Could we go onto page 118,
5 please, of Exhibit 82? And this page talks about the
6 Winisk River drainage region.

7 And just below the middle line roughly of
8 that text, the sentence begins, "furthermore", and it
9 goes on to say:

10 Very little is known about the
11 hydroelectric power potential of the
12 region.

13 Do you see that, Ms. Basu Roy?

14 A. Yes, I do.

15 Q. Okay. I won't take you to the other
16 two unless it is necessary, but would you would agree
17 that if we turn to the text corresponding to the other
18 two drainage areas, we would see similar caveats; that
19 is, there might be a lot that we haven't counted?

20 A. Well, unless I actually look at it --

21 Q. Okay. Well, let's look at it and we
22 will only take a minute. Page 125 -- I am sorry, I
23 skipped -- page 122 is the Severn River drainage
24 region. It says:

25 Very little is known about the Severn

1 River drainage region.

2 That is at the first sentence.

3 MS. HARVIE: Well, might we go on to read
4 the rest of some of the paragraph there? It contains
5 other information that may be of interest to the Board.

6 MS. BASU ROY: It says:

7 Sufficient is known about its
8 hydroelectric potential to place this
9 region in the third place.

10 THE CHAIRMAN: So far as Hydro is
11 concerned, and I realize it is only as far as Hydro is
12 concerned, it doesn't matter because whatever they do
13 identify up there, they are going to exclude anyway on
14 the basis of the northern river philosophy.

15 So, if you do scrape up another thousand
16 or two megawatts, which would be quite dramatic, they
17 would take it out in any event. So, I don't quite know
18 where we are getting at in this line of
19 cross-examination.

20 MR. MONDROW: Mr. Chairman, I am ready
21 for my next question and hopefully that will make it
22 more clear.

23 Q. Ms. Basu Roy, Mr. Brown told us in
24 Panel 5 - and for the record, that is transcript Volume
25 70, page 12614 - that there is a 15-megawatt site

1 identified on the - I believe it is pronounced -
2 Nagagami River which is in the Albany region northeast.
3 And there is another site of 8.3 megawatts identified
4 in the Albany region northwest and one in the Severn
5 region.

6 And my question, Ms. Basu Roy, is: In
7 light of that information, on what basis can you
8 conclude that that is it for all of northern Ontario,
9 for those river drainage areas that you have excluded
10 in terms of potential?

11 MS. BASU ROY: A. I am sorry, I don't
12 quite understand your question.

13 What do you mean by "that is it"?

14 Q. Well, considering there were some
15 sites identified on some of these rivers for the
16 purposes of Panel 5 evidence, I am trying to
17 establish -- and the question then is: Isn't it true
18 that there could be a lot more up there; there could be
19 hundreds of rivers, thousands of sites that we don't
20 know about or tens of rivers with hundreds of sites?
21 Couldn't there be a lot more there that we don't know
22 about? That is the question I started out with.

23 A. Okay, but we have identified this
24 potential already, have we not? I don't see --

25 Q. The question I asked you about, I

1 said, it seems to me that there is a dearth of
2 information about northern Ontario and couldn't there
3 be a lot more up there?

4 And your answer, I think, was, no, or --
5 let me ask you that again: Is your answer no to that
6 question? Couldn't there be a lot more up there that
7 you don't know about?

8 A. That there may be some up there that
9 we have not identified. We have not spent a lot of
10 effort pursuing, I guess, or looking in great deal on
11 the northern rivers.

12 Q. And you have excluded that potential;
13 yet, we know that there are a couple of sites that are
14 up there that have been identified.

15 There could be more, could there not,
16 that will be developed?

17 A. This is within the potential that we
18 have excluded.

19 Q. Yes. And there are a couple of sites
20 on those rivers that you excluded, wholesale or
21 blanket, that have been identified.

22 And my question is: Is it your position
23 that there aren't any more sites up there that will be
24 developed? That is what your exclusionary category
25 means, isn't it?

1 A. That Ontario Hydro is not for
2 planning purposes including developments on the
3 northern rivers.

4 Q. Okay. Thank you.

5 MR. SNELSON: A. I think if you were to
6 look carefully at those sites, that you would find that
7 they were within reasonable distance of the Ontario
8 Hydro system which would place them towards the sources
9 of those rivers rather than the downstream parts of the
10 rivers where they come close to the watershed that
11 would flow into the Great Lakes.

12 So, these may very well be in sort of
13 borderline sorts of areas, the sites that are being
14 developed.

15 Q. And the borderline could be farther
16 north of those sites, too, couldn't it? We don't know
17 where the borderline is, do we?

18 A. I think we have agreed that our
19 exclusionary criteria are broad and that there are the
20 potential for exceptions to be found to those
21 exclusionary criteria.

22 Q. Okay. Thank you. Let's move on to
23 another criteria for a minute. I want to talk about
24 other environmental, technical and economic identified
25 on page 36 of Exhibit 362. The number is 1,795

1 megawatts.

2 If we take out Exhibit 28, we will see
3 that number broken down for us, on page 9 of the
4 hydraulic plan. We see that the 1,795 megawatts is
5 composed of 796 megawatts of uneconomic extensions to
6 some of Ontario Hydro's Ottawa River stations. That is
7 in the second paragraph. I know that has been revised
8 and I believe the number is now 807 megawatts.

9 THE CHAIRMAN: Well, the revised numbers
10 are on Exhibit 362, page 32.

11 MS. BASU ROY: I think we have not
12 revised the Ottawa plant extensions.

13 MR. MONDROW: I stand corrected.

14 Q. In the second part of that 1,795
15 number, we see in the fourth paragraph on page 9 of
16 Exhibit 28, it is 988 megawatts excluded due to limited
17 data primarily from aerial photography.

18 Do you see that?

19 MS. BASU ROY: A. You are working
20 without dated information by going back to Exhibit 28.
21 We don't have a comparable 988 value that we are
22 working with in the update.

23 Q. Okay. I would like to stick to this
24 for a minute because I want to draw a distinction
25 between something else that we have heard.

1 A. Okay, but you won't be able to go
2 back to the original page that you asked us to use as
3 an anchor, this 1795. It doesn't tie into that number.

4 Q. I understand. We had a confusing
5 session with Mr. Brown in Panel 5 on this particular
6 number or the version of it that he was using at that
7 time and he used it in his calculation of potential for
8 the NUG plan. And he advised us that we should check
9 with you about what these numbers on the hydraulic plan
10 mean.

11 A. I believe that there has been an
12 undertaking that has been filed that has done a very
13 good job of trying to reconcile the discrepancies.

14 THE CHAIRMAN: Do you have the number?

15 MS. BASU ROY: Yes. It is Exhibit 322.27
16 and it essentially updates the NUG position with
17 respect to technical potential.

18 THE CHAIRMAN: Is this data also on 359?

19 MS. BASU ROY: Some of the numbers are
20 but no, you won't find it exactly.

21 MR. MONDROW: Q. Well, I have got
22 322.27. I appreciate you pointing that out to me. I
23 am going to, nonetheless, ask you a question here. And
24 we can look at page 32 of Exhibit 362. That is the
25 current breakdown of that 1,795, correct?

1 MS. BASU ROY: A. That is correct.

2 Q. In Panel 5, Mr. Brown told us - and,
3 as I say, it was a pretty confusing conversation. I
4 will give you the reference. I don't want to go
5 through it because it goes on for a number of pages and
6 there is a lot of confusion. I would like to ask
7 you -- first of all, the reference is Volume 70. It is
8 page 12626 where it starts.

9 [3:15 p.m.]

10 Q. I would like to ask you to accept my
11 rendition of what the evidence that Mr. Brown gave is,
12 subject to check, for the purposes of the question that
13 I want to ask you. I'll give you those propositions
14 and then you can tell me if that's satisfactory.

15 Mr. Brown was using the old number for
16 that category which was 1,784 megawatts. He told us
17 that 843 megawatts of that were uneconomic extensions
18 to Ontario Hydro's stations, that's the 796 for the
19 Ottawa stations and there were some other stations, and
20 then he said that 240 megawatts on top of that were
21 from extensions uneconomic for NUG facilities.

22 Now, the difference between the 1,784
23 number and the sum of 796 and the 240 for uneconomic
24 extensions was 701 and Mr. Brown said that he excluded
25 the 701 due to economic and environmental

1 considerations on the faith of the 1,784 figure in the
2 hydraulic plan, which is now 1,795.

3 A. And I believe that he has corrected
4 that statement by Exhibit 322.27, that has been
5 updated.

6 He now has included 275 megawatts under
7 other environmental, technical and economic exclusions.

8 Q. I'm sorry, could you give me that
9 number again?

10 A. If you look on the last page of that
11 exhibit--

12 Q. Yes.

13 A. --there is a listing of what makes up
14 the NUG technical potential.

15 Q. Yes, I have that.

16 A. And you'll see the last number to be
17 added up is 275 megawatts for other environmental,
18 technical, economic exclusions and he's now including
19 that in the NUG technical potential.

20 Q. Okay. I understand now then that
21 since Exhibit 28 was written you've gotten more
22 information on the 988 megawatts and, in fact, that's
23 what you provided to us in Exhibit 362 page 32, the
24 breakdown of that?

25 A. That's correct.

1 Q. Okay, thank you. Okay, that's great.

2 Thanks.

3 Now, the northern river category, this is
4 back down to page 36 of Exhibit 362, 5,000 megawatts
5 which we talked about a minute ago, the assumption is,
6 I believe, that none of this potential will be
7 developed by Ontario Hydro, that's right; isn't it?

8 A. That's correct.

9 Q. Of the five major river systems
10 flowing north in Ontario all five are partly in the
11 Precambrian Shield and partly in the Hudson Bay
12 lowlands; is that right? We can see that from Exhibit
13 364.

14 MR. FLOOK: A. Generally speaking, yes.

15 Q. Yet you excluded four of them from
16 development and not the fifth. Could you tell me why
17 that was?

18 A. Well, as pointed out at various times
19 in the evidence, first of all, the Moose River Basin,
20 the river system there is already a regulated river
21 system, there's already I think 14 generating stations
22 on the system.

23 And then the other point, from a
24 geological point of view, is that the Hudson Bay
25 lowlands curves around right at the Moose River until

1 it's sitting on -- although it's on the Hudson Bay
2 lowland it's right on the boundary between the
3 Precambrian and the Hudson Bay lowland, and when you
4 look at the foundation conditions there, it's not a
5 significant problem.

6 Q. And yet it would be for the other
7 river systems?

8 A. I don't know that it would be or
9 would not be. You would have to look at them
10 specifically.

11 Q. So when I asked you why you included
12 the four and not the fifth, part of your response was
13 that the fifth was already partially developed. That
14 was the first part of your statement?

15 A. The first part was it was already
16 developed.

17 Q. Right.

18 A. The second part is that from a
19 foundation point of view that the Hudson Bay lowland
20 curves around at the bottom of James Bay.

21 Q. Yes.

22 A. As it crosses the Mattagami, Abitibi,
23 North French rivers, that part is right in the
24 transition zone between the Precambrian Shield and the
25 Hudson Bay lowlands, so you have sedimentary rock

1 laying on a thinner layer of sedimentary rock laying on
2 top of the Precambrian.

3 Q. And you're not sure if that's true
4 for the other drainage basins?

5 A. That is correct.

6 Q. Okay. Please turn again to
7 Interrogatory 6.14.45 which I've mentioned a couple of
8 times.

9 I would like to look again at report No.
10 88826 entitled Proposal for Hydroelectric Power
11 Development in the Moose River Drainage Region. I
12 would like to look at page No. 4 of that report, at the
13 last paragraph.

14 THE CHAIRMAN: Is this a page that begins
15 with costs and cash flow?

16 MR. MONDROW: Yes, sir.

17 Q. The last paragraph on that page says:

18 "As work progresses on the Moose River
19 basin, it is expected that the same
20 organization...", and organization refers
21 to the whole workforce that's talked about earlier on
22 that page,

23 "...would be in a position to plan and
24 extend the work to the northwest to
25 incorporate the James Bay lowland sites on the Albany,

1 Attawapiskat, Winisk and Severn Rivers into the system,
2 and this report was dated 1988, September,
3 1988.

4 Those are the four areas referred to in
5 that paragraph, they're the excluded river systems; is
6 that correct?

7 MR. FLOOK: A. That is correct.

8 Q. So I take it those developments are
9 no longer anticipated?

10 A. That is correct.

11 Q. Thank you. I would like to talk
12 about parkland for just a minute. There are 674
13 megawatts excluded for parkland reasons based on the
14 1988 Ministry of Natural Resources announcement and,
15 Ms. Basu Roy, that's correct, that's shown as a
16 separate parkland category on page 36 of Exhibit 362?

17 MS. BASU ROY: A. That's correct.

18 Q. And there are others, I understand,
19 in the small hydro numbers and, in fact, thanks to your
20 reference I see that's also broken out on page 32 of
21 Exhibit 362, 12 megawatts for parkland?

22 THE CHAIRMAN: No, 303.

23 MR. MONDROW: Oh, I'm sorry, 303. I was
24 looking at the number beside. Thank you, Mr. Chairman.
25 303 for parkland.

1 MS. BASU ROY: 303 is correct.

2 MR. MONDROW: Q. Okay. Which gives me
3 977 megawatts parkland total?

4 MS. BASU ROY: A. Well, there's
5 additional parkland exclusion. There's the potential
6 on the northern rivers and there's some in the less
7 than 5 megawatt category.

8 Q. Off the top of your head, do you have
9 the total for those?

10 A. No, I don't.

11 Q. Okay. I can add those up. All the
12 information is at various places in the overhead
13 package.

14 THE CHAIRMAN: What you're saying is that
15 part of the excluded northern rivers, some of that is
16 parkland which isn't broken out elsewhere. Is that
17 what you mean?

18 MS. BASU ROY: That's correct.

19 THE CHAIRMAN: All right.

20 MR. MONDROW: Q. Could you give us a
21 rough idea of how many megawatts; is it a 1,000, is it
22 1,500, is it 2,000?

23 MS. BASU ROY: A. Just give me one
24 minute.

25 Q. Certainly. Just a rough figure, I'm

1 not interested in a megawatt by megawatt count.

2 A. Sorry, I don't have that information
3 with me.

4 Q. Okay, that's all right.

5 Is it Ontario Hydro's position - and I
6 want to leave aside for the moment the government
7 policy on parklands, I'm aware of it - but just without
8 that government policy, is it Ontario Hydro's position
9 that the development of a hydroelectric facility in a
10 provincial park is always environmentally unacceptable?

11 A. No.

12 Q. In fact, I would put to you that you
13 could develop an environmentally acceptable facility in
14 a park, it might be smaller than you want, or it might
15 be run of the river only, but you could do it. Is that
16 something that Ontario Hydro believes?

17 A. Well --

18 Q. And still be consistent with
19 maintaining --

20 A. Right now we are abiding by the Parks
21 Policy quite closely and any development that we're
22 proposing where it may flood back into parkland, we are
23 in close communication I guess with MNR to find out
24 whether or not that will be acceptable or not.

25 Q. But Ontario Hydro is following the

1 MNR policy not to develop facilities in the parks?

2 A. We do not have any plans to develop a
3 site within provincial parkland.

4 Q. Has Ontario Hydro taken any steps to
5 engage in a dialogue with the provincial government on
6 an environmentally acceptable modification of the Parks
7 Policy?

8 A. We have tried on some instances, for
9 instance on the Missinaibi River, and met with no
10 success.

11 Q. I've heard of many small hydro
12 facilities in the middle of small towns which don't
13 detract from the beauty or charm of the towns.

14 I'm also told that in other parts of the
15 world there are hydroelectric developments successfully
16 integrated into parks, including some parks far outside
17 of developed areas, without interrupting the aesthetic
18 nature of the park.

19 Is it Ontario Hydro's position that such
20 developments are possible?

21 A. I would think you would have to put
22 that position to MNR and let them have a look at it.
23 We have not done so, other than some of the
24 developments that we were proposing prior to the park
25 boundary establishment, we did pursue them to some

1 extent afterwards and met with no success.

2 Q. Has Ontario Hydro done any
3 investigation to determine the number of megawatts that
4 we could get with environmentally acceptable
5 development of hydroelectric sites in the designated
6 parks?

7 A. No.

8 Q. Could you undertake to do that?
9 Would that be a lot of work?

10 MR. FLOOK: A. That would be very
11 site-specific studies of mapping and, you know, you're
12 looking a million dollars a site perhaps the time you
13 develop maps and carry out geotechnical investigation.
14 I don't think that's appropriate.

15 Q. It wouldn't be possible to get a
16 rough cut of run-of-the-river facilities in restricted
17 waterways?

18 A. No.

19 MS. BASU ROY: A. The Parks Policy does
20 allow hydroelectric development within the parks if
21 it's for the sole purpose of supplying energy needs for
22 facilities within the park.

23 Q. Could we then get an undertaking just
24 to have the total number of parkland exclusions, the
25 number that we were talking about a little earlier?

1 Would that be difficult to get, the total megawatt
2 number that is, or a rough cut of that number?

3 A. I think we should be able to get
4 that.

5 Q. Thank you.

6 MR. MONDROW: A number, please, Mr.
7 Chairman.

8 THE REGISTRAR: 366.11.

9 ---UNDERTAKING NO. 366.11: Ontario Hydro undertakes to
10 obtain a rough cut of total
11 megawatts included in parkland
exclusions covered by Parks
Policy.

12 MS. BASU ROY: But that will include only
13 the potential that we have identified, I guess, within
14 our exclusionary categories.

15 MR. MONDROW: Q. Including the northern
16 rivers?

17 MS. BASU ROY: A. Okay. We do have that
18 separate, yes.

19 Q. Okay, great. Thank you.

20 THE CHAIRMAN: Would there be some in the
21 small hydro category, the 987 megawatts?

22 MS. BASU ROY: That's where I'm thinking
23 we may run into some trouble with the small hydro
24 because I know on the northern rivers we know what
25 sites are within parkland but the small hydro, I don't

1 think we have specifically separated out that category.
2 The other categories I believe I can get the number for
3 you.

4 MR. MONDROW: Q. If you can do your best
5 and attach whatever caveats you feel are appropriate
6 that would be fine.

7 I would like to talk about costs, Mr.
8 Flook. Your evidence is that 90 per cent of the cost
9 of a hydroelectric facility is capital cost; is that
10 right, roughly?

11 MR. FLOOK: A. No, I don't think I said
12 that. I believe Ms. Basu Roy talked about the lifetime
13 cost of the station and used it in the 90 per cent
14 figure.

15 Q. 90 per cent of the lifetime cost then
16 of a hydroelectric facility is capital costs?
17 [3:30 p.m.]

18 MS. BASU ROY: A. That was approximate.

19 Q. Approximate. That is fine, thank
20 you.

21 Mr. Flook, you did say in your direct
22 evidence that the release estimate for hydroelectric
23 projects contains a contingency or uncertainty factor
24 of 10 to 15 per cent; is that right?

25 MR. FLOOK: A. In that range.

1 Q. Is that a standard range for the
2 industry?

3 A. I don't know if it's standard for the
4 industry. I think the 10 per cent is approximately
5 what people use.

6 Q. Does Ontario Hydro know what the
7 experience of other utilities doing large, say, over
8 200 megawatts hydraulic projects is as to the
9 difference between actual costs and released estimates?
10 Have you done any sensitivity of that, taking
11 information from other utilities?

12 A. Not really. All I can relate is what
13 I either read in articles or I hear from other people,
14 such that the limestone project which I think was
15 released for about \$2 billion, brought in about \$700
16 million less than that because of economic and various
17 conditions that occurred.

18 Q. So other than keeping current on what
19 is happening there is no formal study.

20 A. There is no formal study, no.

21 Q. You have told us, Mr. Flook, that
22 Ontario Hydro hasn't developed a hydroelectric station
23 for quite a while, and I think you have also told us
24 that -- or the evidence tells us that the sites that
25 have been developed are the easiest and the cheapest to

1 develop, the most accessible, closest to load?

2 A. The ones built earlier, yes.

3 Q. Physically easiest, yes. Thank you.

4 So from here on in developing
5 hydroelectric gets a little more complicated than it
6 has in the past; would you agree?

7 A. I don't know. Niagara is right where
8 other stations were built; the Mattagami Extensions of
9 course are right where other stations were built;
10 Patten Post is right in the vicinity where other
11 stations were built; even Little Jackfish, there were
12 diversion structures built there in the 1940s. So I
13 don't think they are radically different geographically
14 from things that had been already undertaking.

15 Q. I didn't mean to suggest that. I can
16 accept that there is a continuum. But if we are going
17 to less or more complicated relative to past sites, we
18 are going to tend towards more complicated rather than
19 less; is that fair?

20 A. That's a generalization, yes.

21 Q. It's not necessarily going to be
22 radical. I understand you to be saying that and I can
23 accept that.

24 A. Yes.

25 Q. Okay. Now, you were asked in your

1 direct testimony to tell us of the one recent
2 experience that you have had, and that's Big Chute.
3 Big Chute is a 10 megawatt facility?

4 A. That is correct.

5 Q. It's, in effect, a small hydro
6 facility in terms of megawatts; isn't it?

7 A. That is correct.

8 Q. Would you say that the results of a
9 10 megawatt facility in terms of capital cost estimates
10 and actual capital costs is something that can be
11 extended to encompass the uncertainty of costs in
12 large hydro facilities; are you comfortable with that?

13 A. I think you are looking at your
14 estimating process, and yes you can if you are looking
15 at that.

16 In fact, I think a small hydro site
17 perhaps is more difficult in that a large capital
18 undertaking has many more components of which each
19 component can vary up or down and therefore your total
20 project cost you may have more confidence in the
21 prediction of it.

22 MR. MONDROW: Mr. Chairman, I have a few
23 more questions on this topic, I have just glanced at
24 the clock, and I have one more short topic. With your
25 indulgence, I would propose to complete the remaining

1 questions on this topic and take perhaps ten minutes
2 after the break. Would that be acceptable?

3 THE CHAIRMAN: Or would you prefer to go
4 through to the end, if you like.

5 MR. MONDROW: I would prefer that, if you
6 don't mind. I will try to keep it brief.

7 Q. Mr. Flook, are you aware that there
8 is a large body of evidence supporting the notion that
9 capital cost uncertainties of projects increase with
10 the size and complexity and the lead time of the
11 projects?

12 MR. FLOOK: A. I think you have to look
13 very closely at the lead time, yes, the long-term
14 capital projects.

15 Q. And the complexity, the size of the
16 project?

17 A. If a project is complex, yes. But my
18 testimony indicated that hydroelectric installations
19 are a mature technology, most of it tried and true.

20 Q. So, your evidence then is that
21 Ontario Hydro doesn't prepare its cost estimates based
22 on that body of thought, that the larger, the more
23 complex, the longer lead time you get, the more
24 uncertainty you are going to have?

25 A. Hydro uses consultants who are

1 working on other projects and they bring to the
2 particular project that Ontario Hydro is estimating for
3 their knowledge and expertise and their knowledge of
4 specific costs from these other projects that they have
5 completed both in North America and around the world.

6 Q. At transcript Volume 82, Mr. Flook,
7 you need not turn it up unless you want to. It's page
8 14536, and line 10 for the record, you stated that
9 foundation conditions are the most important feature of
10 a hydroelectric design, the biggest variable which
11 influences the final cost of the project.

12 Do you recall that testimony?

13 A. Yes.

14 Q. Small facilities would be less
15 susceptible to foundation problems; wouldn't they?

16 A. Not necessarily.

17 Q. Could you explain that answer?

18 A. If you have got a foundation problem
19 you have got a foundation problem whether it's big or
20 small.

21 Perhaps on a small facility you have some
22 extra manoeuvrability to work around that problem if
23 you have identified it ahead of time. But then if you
24 have identified it ahead of time with a large site you
25 already know about it and you take that into account.

1 If you are going into a site and you get
2 a surprise on a small site, it may be as big a problem
3 or bigger than a large site.

4 Foundation problems can give you a
5 problem whether you have got a small site or a large
6 site.

7 Q. Would it be easier, do you think, to
8 resite, to shift over a small development than a large
9 development if it came to that, to reorient the
10 components?

11 A. Not necessarily.

12 Q. Okay. Another thing you mentioned in
13 your evidence, Mr. Flook, is the Monte Carlo simulation
14 as a method of assessing confidence in capital cost
15 estimates. This a method that Ontario Hydro uses; is
16 that correct?

17 A. Ontario Hydro has used it, and as I
18 indicated in my direct evidence they used it to
19 generate the values in the initial hydraulic plan and
20 DSP submissions.

21 Q. When you use that method, the Monte
22 Carlo method, you start by assigning uncertainties to
23 various cost components and that's judgmentally?

24 A. That's correct.

25 Q. And the whole rest of the stimulation

1 will be controlled of course by those initial judgments;
2 is that fair?

3 A. That's correct.

4 Q. So, if you assign, for a 1 per cent,
5 to be absurd, contingency or uncertainty to each cost
6 component, then mathematically using the Monte Carlo
7 simulation you couldn't possibly get a total
8 uncertainty of more than 1 per cent; could you?

9 A. If you were using 1 per cent, yes.

10 Q. So, the real key to the uncertainty
11 range that the Monte Carlo simulation provides you is
12 the input assumptions; right? If these are the wrong
13 the simulation results will be wrong, and computer
14 people like to use the phrase, garbage in, garbage out.
15 Is that fair?

16 A. That's fair, yes.

17 Q. And these inputs are all judgmental,
18 is that right, or largely judgmental?

19 A. If you are using that exclusively,
20 yes.

21 Q. If you were using?

22 A. I was very clear in my direct
23 evidence that that was used for generating those
24 numbers as part of the DSP to be consistent with
25 looking at other technology alternatives.

1 You also then have the option of looking
2 at just a straight forward capital cost estimate, item
3 by item, and putting a contingency on. So therefore,
4 you have a check on those dollars, total dollars versus
5 what may come out of the Monte Carlo simulation.

6 Q. Thank you.

7 I would just like to ask a few questions
8 about the preference premium.

9 Mr. Snelson, it's your evidence that in
10 making cost evaluations for large hydro you apply the
11 10 per cent nominal preference premium, which is 6 or 7
12 per cent real, as you do for small hydro and waste
13 fuels and high-efficiency cogen and demand side
14 management; is that correct?

15 MR. SNELSON: A. I heard the reference
16 to 10 per cent preference premium but there was a
17 another number thrown in there and I didn't --

18 Q. The 10 per cent is nominal; is that
19 right? It's a nominal number as opposed to the real
20 number which was probably 6 or 7 per cent.

21 We can stick to the 10 per cent if you
22 feel more comfortable.

23 A. I am not sure what your 6 or 7 per
24 cent reference is to. That's where I am having
25 problems.

1 Q. You use the 10 per cent.

2 A. We use the 10 per cent preference,
3 yes.

4 Q. Okay. Does this mean that implicitly
5 you have determined that public preference for large
6 hydro is exactly the same as for demand side
7 management, for example?

8 A. No.

9 Q. In fact, earlier in your
10 cross-examination I believe you said that it is kind of
11 a rough cut, this 10 per cent preference premium, it's
12 not a very precise tool.

13 A. That is correct. We determined that
14 certain things were preferred and those things which
15 were preferred we gave a 10 per cent preference to.

16 Q. And so it's not Ontario Hydro's
17 position that the preference premium captures the
18 environmental externalities of large Hydro as opposed
19 to demand side management; right, it accurately
20 compares the two?

21 A. No, it is not our position.

22 Q. And we saw earlier that
23 run-of-the-river developments have different and fewer
24 possibly environmental consequences than peaking
25 developments. They both get the full preference

1 premium; is that right? It is just 10 per cent whether
2 it's peaking or run-of-the-river?

3 A. They both get the same preference
4 premium.

5 Q. Does Ontario Hydro believe that the
6 environmental attractiveness of the large hydro is more
7 than, less than or the same as the other options, if
8 they get the preference premium, let's say demand side
9 management? Are you in a position to say?

10 A. No, I don't think I can make such an
11 evaluation.

12 Q. I will refer to you Exhibit 359, page
13 25. I am sure you are familiar with it, it's your
14 cost/benefit analysis for certain representative sites.
15 And the avoided cost calculations in that table include
16 the preference premium as you have already stated it;
17 is that correct?

18 A. That's correct.

19 Q. Okay. At page 4 of our Exhibit 415,
20 we have done a revision of that table in which we have
21 simply taken out the preference premium of 10 per cent
22 from the avoided cost number. I am just going to find
23 my copy of that exhibit.

24 Would you agree with me, Mr. Snelson,
25 that the result of our removal of the preference

1 premium, the 10 per cent, means that you are left with
2 only Big Chute, Lake Gibson and Niagara as passing the
3 cost/benefit test, as having a cost/benefit ratio of
4 less than one?

5 THE CHAIRMAN: I am sorry, what page are
6 you looking at?

7 MR. MONDROW: I am looking at page 4 of
8 Exhibit 415. It's entitled "Cost/Benefit Ratios, No
9 Preference Premium."

10 MR. SNELSON: Yes, Mattagami is very,
11 very close in your evaluation.

12 MR. MONDROW: Q. Of course we discussed
13 in Panel 5 that current expectations of surpluses mean
14 that, if anything, avoided costs are going to go down
15 and Mattagami would no longer be close; is that right,
16 if that happens? Not as close, certainly.

17 MR. SNELSON: A. It would not be as
18 close.

19 The avoided cost may be for a limited
20 period of time or it may be for a longer period of
21 time. So, it may or may not affect the really
22 long-term evaluation of the project.

23 Q. And just confirm for me, please, that
24 a cost benefit ratio over one indicates that before
25 counting externalities, of course, there are cheaper

1 options available rather than the option being tested,
2 the site being tested. That's what a cost/benefit
3 ratio means?

4 A. That's an indicator of that.

5 Q. Okay, Fair enough.

6 Mr. Flook, I have seen a lot of
7 commentary -- just a few more questions, please. I beg
8 your patience.

9 I have seen a lot of commentary in
10 Ontario Hydro's documentation to the effect that the
11 river basin approach, among other things, means a cost
12 savings because you can program operations to develop a
13 bunch of sites in the same area at the same time.

14 Have the economics of development changed
15 as a result of the pulling of the Abitibi sites?

16 MR. FLOOK: A. No.

17 Q. So that particular advantage of the
18 river basin approach didn't apply to the Moose River
19 Basin then.

20 A. I think where you are looking at your
21 main cost advantages where there is a number of parts
22 to the infrastructure access and transmission that
23 could be used amongst the various sites, and in the
24 case of Mattagami against the Abitibi Complex on the
25 two different river systems, the access being from two

1 different areas of Highway 11, that's not a major
2 feature.

3 Q. So that advantage of river basin is
4 more specific than the river basin; isn't it? You are
5 talking about one river and another river in the same
6 basin?

7 A. For some of those specific things I
8 am talking about. But the river basin may provide you
9 the opportunity of doing other things that are in the
10 broader sense of, say, a district, say Cochrane
11 district, that there may be some advantages.

12 Q. And there are none of those
13 advantages in the case of the Moose River now without
14 the Abitibi sites.

15 Let me rephrase the question. Those cost
16 advantages didn't exist in the Moose River Basin; is
17 that what you are saying, and so the pulling of the
18 Abitibi sites didn't affect the economics of the
19 remaining developments?

20 [3:46 p.m.]

21 A. I don't know that I can characterize
22 it that there were none and now it doesn't affect it.
23 There may be some lost opportunities.

24 Q. If there are lost opportunities, will
25 that information be clear in the reintegration that we

1 are going to get in January if the economics have
2 changed at all?

3 MR. SNELSON: A. I think you will have
4 to wait to see what is in the reintegration package. I
5 don't know what is in the reintegration package.

6 Q. Okay. I don't want to ask for an
7 undertaking -- well, you probably couldn't give it
8 anyway, so I will leave. We will wait and see what is
9 in the reintegration package.

10 Two more quick questions. It is really
11 one more topic. I just want to get our last overhead
12 up, please, which is page 5 of Exhibit 415. And again,
13 it is a revision of the Exhibit 359 table that I
14 referred you to earlier, Mr. Snelson, at page 25, and a
15 further revision of our page 4 of Exhibit 415.

16 And this time, we have again taken out
17 the preference premium and, in a sense and instead, we
18 have applied a 25 per cent increase in avoided costs.
19 There could be any number of reasons for that. I will
20 ask you to assume that it is due to the internalization
21 of environmental externalities for fossil and nuclear,
22 for example.

23 Mr. Snelson, could you confirm for me
24 that on this supposition, just on these sites alone,
25 without considering the other sites already excluded

1 for economic reasons, there are over 2700 megawatts
2 that meet the cost/benefit test?

3 A. If you mechanically go through that
4 exercise, that is the number you will get.

5 Q. Of course, that is before
6 internalizing environmental externalities of large
7 hydro which you would have to do to be even-handed and
8 other things; presumably, anything could happen with
9 these numbers as judgments and values for soft costs
10 are incorporated; is that fair?

11 A. You have hypothesized the 25 per cent
12 increase in avoided cost as being due to externalities.

13 Q. Fossil and nuclear externalities.

14 A. I have accepted that you worked with
15 the 25 per cent increase and you have a hypothesis. I
16 don't necessarily accept the hypothesis, but I have
17 answered in the light of that hypothesis.

18 Q. I appreciate that. I guess my final
19 point is that depending on how things are evaluated,
20 the cost/benefit ratio can change in any number of
21 ways. We have tried to illustrate that; will you
22 accept that?

23 A. Yes, the cost/benefit ratio can
24 change.

25 MR. MONDROW: That is fine. Thank you.

1 Those are all my questions. Thank you, witnesses.

2 DR. CONNELL: I have a direct question to
3 Mr. McCormick. From Mr. Mondrow's earlier questioning,
4 I drew an inference. I am not sure whether this was in
5 his mind or not, but it seemed to me to imply that a
6 river basin ecosystem in which there are no human
7 intrusions is essentially a stable ecosystem.

8 I invite to you comment on that or on the
9 reverse of it. Really, is it possible for, what we
10 would conceive of as, natural events to perturb river
11 basin ecosystems?

12 MR. MCCORMICK: I think we should have a
13 biologist commenting on that. My understanding is that
14 natural events can. And one of the types of indicators
15 that I have heard biologists speak about is the
16 strength of fish year class, that you can find
17 considerable variation. If one went in and studied in
18 a natural system the fish species and certain age
19 groups, and you will see that certain years they are
20 abundant; other years, they are less abundant depending
21 on whether it is a dry or wet year which affects
22 spawning.

23 There's a lot of natural events that
24 could take place on cycles or randomly that can affect
25 a natural system in that way.

1 DR. CONNELL: There are in Ontario a
2 number of rivers which are regulated primarily for
3 flood control reasons; is that correct?

4 MR. MCCORMICK: I can't comment on that.
5 Tom?

6 MR. WIGLE: Yes. I think the Grand
7 River, the--

8 DR. CONNELL Thames River?

9 MR. WIGLE: Thames; although there may be
10 NUGs on those now. I am not sure.

11 DR. CONNELL: And before those rivers
12 were regulated, there was occasionally very severe
13 downstream flood damage.

14 MR. WIGLE: Very much so, especially in
15 the City of London; it was severely flooded.

16 DR. CONNELL: Yes. And associated with
17 those floods might be what could be regarded as
18 ecosystem damage, perturbations? If they had happened
19 by a man-made agency, we would think of them as
20 environmental perturbations of an undesirable kind
21 presumably?

22 MR. MCCORMICK: Yes, I think it is true.

23 DR. CONNELL: In some of those instances
24 where those rivers are regulated primarily for flood
25 control, there is also now some hydraulic generation

1 too; that is correct?

2 MR. McCORMICK: I believe there could be
3 exceptions, but I would expect that to be true.

4 MR. WIGLE: Yes. I don't know for
5 certain, let's say, the Thames or the Grand, but I
6 think I have read some place where there are some small
7 units.

8 DR. CONNELL: I am not sure whether any
9 of those units are, in fact, owned and operated by
10 Hydro, but I would be interested if they are; they are
11 not?

12 MR. WIGLE: No, they are not.

13 DR. CONNELL: And do you happen to know
14 whether any of them are run in a peaking mode?

15 MR. WIGLE: No, I don't.

16 DR. CONNELL: Anyone else?

17 MR. SNELSON: I would be a little
18 surprised if they were because most -- that they are
19 owned by non-utility generators in the main, but if
20 they are not owned by Ontario Hydro, then they are
21 almost owned by non-utility generators by definition.

22 The full benefits of peaking can only
23 really be realized if the units are under the control
24 of the system control centre. And most of these units
25 would not be under the control of the system control

1 centre, so I would be very doubtful that they would be
2 operated as peaking units.

3 THE CHAIRMAN: You mean, they would be
4 load displacement? Unless I am missing something, if
5 they are purchased NUGs, they will be on the control
6 system.

7 MR. SNELSON: They would to a degree, but
8 they would probably choose the time they generate.
9 They may be monitored back to the system control
10 centre, but they are not dispatched on a hourly basis
11 from the system control centre.

12 DR. CONNELL: But they might be
13 dispatched, say, during the 16-hour peak?

14 MR. SNELSON: They may be in response to
15 time-differentiated rates for non-utility generators
16 that gives them a higher value. If they are selling
17 energy to us, then they will, under the
18 time-differentiated rate, would get a higher value for
19 the energy if they can produce it during the 16 hours
20 of the daytime rather than eight hours of nighttime.

21 DR. CONNELL: Obviously the point I was
22 leading up to, but it is difficult to establish the
23 point because of the uncertainties that you have
24 pointed to, but I would infer that if they do operate
25 in the mode we have just described, they are operating

1 in a mode which is consistent with maintaining stable
2 ecosystems and that they would presumably inflict much
3 less environmental damage than would the river in the
4 natural state when it was susceptible to severe spring
5 flooding.

6 MR. SNELSON: I think that one would be
7 talking about two very different sorts of water
8 variation. One is a very, perhaps very wide swings in
9 water that comes down the river that is sustained for
10 days, if not weeks, at a time versus a shorter duration
11 surges of water that come down the river that are
12 released for hours to a day at a time. So I think we
13 are talking about very different sort of time scales

14 DR. CONNELL: Thank you.

15 THE CHAIRMAN: Any further questions, Mr.
16 Mondrow?

17 MR. MONDROW: No, thank you, Mr.
18 Chairman, and thank you for your indulgence.

19 THE CHAIRMAN: Mr. Hamer, you are ready
20 to go?

21 MR. HAMER: Yes, Mr. Chairman.

22 THE CHAIRMAN: We will take the afternoon
23 break and then we will start with you.

24 THE REGISTRAR: This hearing will recess
25 for 15 minutes.

1 ---Recess at 3:55 p.m.

2 ---On resuming at 4:13 p.m.

3 THE REGISTRAR: Please come to order.

4 This hearing is again in session. Please be seated.

5 THE CHAIRMAN: Mr. Hamer?

6 MR. HAMER: Thank you, Mr. Chairman.

7 CROSS-EXAMINATION BY MR. HAMER:

8 Q. Panel members, I am David Hamer. I
9 represent Atomic Energy of Canada. Mr. Thompson tells
10 me to put this on fast forward, so we will see what we
11 can do.

12 Mr. Snelson, may I take it that you have
13 some general awareness of the Hydro Quebec power
14 system?

15 MR. SNELSON: A. A very general
16 awareness through contacts that take place between
17 adjacent utilities.

18 Q. You would be aware, for example, that
19 hydraulic stations provide a very large proportion of
20 Hydro Quebec's generating capacity in comparison to
21 Ontario Hydro?

22 A. Yes.

23 Q. And that over the past several
24 decades, there has grown up quite a pool of expertise
25 in the province of Quebec both within Hydro Quebec and

1 in Quebec engineering firms in the hydraulic area?

2 A. I don't have specific knowledge of
3 that. I presume it is the case, but I don't have
4 specific knowledge of it.

5 Q. And you would accept it, I take it,
6 that similar expertise has grown up in the construction
7 labour forces in the province of Quebec?

8 A. Again, I don't have specific
9 knowledge of that.

10 Q. But it would follow from the extent
11 of Hydro Quebec's investment in hydraulic projects,
12 would it not?

13 A. They have used a large amount of
14 labour in Quebec on building hydroelectric projects.

15 Q. And from your general industry
16 knowledge, would it be fair to say that the activity
17 associated with Hydro Quebec's hydraulic projects has
18 been one of the engines of the Quebec economy over the
19 past 20 or 30 years?

20 A. I have no specific knowledge of that.
21 That is claimed.

22 Q. I beg your pardon?

23 A. I believe that is claimed, but I
24 don't have specific knowledge of it.

25 Q. Claimed by whom?

1 A. Yes. I read the newspapers and
2 politicians and so on.

3 Q. Again, it makes some sense though,
4 does it not?

5 A. It would make some sense.

6 Q. Yes. Would you agree that when a
7 utility in Hydro Quebec's position contemplates further
8 hydraulic projects, it can fairly say that such a
9 project will have a high Quebec content in terms of
10 design and manufacture of equipment?

11 A. I presume so, but as I say, I don't
12 have specific knowledge of that.

13 Q. Mr. Flook, can you assist the Board
14 on that?

15 MR. FLOOK: A. I would also presume. I
16 have no specific knowledge.

17 Q. All right. Would it be fair to say
18 that given Hydro Quebec's heavy reliance on hydraulic
19 generation, that there is a large sector of that
20 province's economy which would benefit from additional
21 large hydraulic projects?

22 MR. SNELSON: A. Again, I don't think
23 that we have the knowledge to specifically comment on
24 it.

25 Q. No general knowledge at all from your

1 perspective as the largest utility next door to the
2 country's second largest utility?

3 A. I am not an expert on the Quebec
4 economy or the proportions of their contracts that are
5 executed within Quebec.

6 Q. All right. And you have no general
7 knowledge as distinguished from expert knowledge?

8 A. I read newspapers and my general
9 knowledge in this area is that of any ordinary citizen
10 I believe.

11 Q. Well, let's turn to Ontario Hydro's
12 point of view then.

13 From Ontario Hydro's point of view, one
14 of the advantages of hydraulic generation is that it
15 has a high Ontario content in the design and
16 manufacture of equipment, fair?

17 A. We believe it can have a high Ontario
18 content, yes.

19 Q. Well, it does have a high Ontario
20 content; isn't that what you are documents say?

21 A. It does have a high content, yes.

22 Q. Yes. And the construction activity
23 on site is highly labour intensive?

24 MR. FLOOK: A. That is correct.

25 Q. And that is that is a benefit to the

1 Ontario economy?

2 A. Yes.

3 Q. And Ontario content in terms of the
4 design of equipment and the installation of site
5 facilities is a criterion under which the hydraulic
6 option is a preferred option; is that fair?

7 MR. SNELSON: A. I am sorry, could you
8 repeat that?

9 Q. Yes. I am sorry, it is rather
10 awkward.

11 Ontario content is a criterion under
12 which the hydraulic option stands out as a preferred
13 option in the Demand/Supply Plan; is that fair?

14 A. That is one of the factors. I have
15 referred to it as being part of the indigenous nature
16 of the resource.

17 Q. Which contributes to making it a
18 preferred option?

19 A. Which contributes to our preference,
20 yes.

21 Q. Yes. If hydraulic generation were an
22 even larger component of your plan, its advantages in
23 terms of that criterion would be even greater; is that
24 correct?

25 A. To the extent that if you have a

1 certain quantity of a good thing, then it is maybe
2 better to have a larger quantity of that same good
3 thing. Per unit of the development, it may or may not
4 be an increase in its preference.

5 Q. One would have to assume the
6 availability in Ontario of a pool of design and
7 manufacturing expertise capable of keeping up with the
8 larger proportion being devoted to hydraulic, is that
9 fair, if you were to say that the benefits go up in a
10 straight line?

11 A. That may be a factor.

12 [4:20 p.m.]

13 Q. And is it fair to say, Mr. Snelson,
14 that the criterion of high Ontario content is one which
15 the responsible planner will apply in considering all
16 supply options?

17 A. Yes.

18 Q. That is to say, Ontario content in
19 design, manufacturing and installation is a criterion
20 which the responsible planner will apply in assessing
21 fossil fuel stations, for example?

22 A. Yes. We tend to think of the effect
23 on the provincial economy as being what proportion of
24 the total life cycle costs occur in the province and it
25 may go beyond just the design and construction and

1 manufacture, it may include the operations and the
2 fuels aspect as well.

3 Q. All right. And another valid
4 consideration for the responsible planner is the fact,
5 as I understand your documents, that a vital hydraulic
6 industry in Ontario is somewhat of a springboard for
7 exports; is that fair?

8 A. I believe that may be a
9 consideration. I don't believe it's a very large
10 consideration in Ontario Hydro's specific
11 considerations.

12 Q. Because hydraulic is such a small
13 portion of your total operations?

14 A. No, because primarily we're focusing
15 on the developments in a way that is providing the
16 greatest benefit to the electricity customer in Toronto
17 Ontario, and providing a springboard for export
18 industry is maybe a worthwhile objective, but it isn't
19 our primary objective.

20 Q. But it is one of your valid
21 considerations as a responsible planner; is that fair?

22 A. It's a valid consideration, I don't
23 believe it's a very large consideration.

24 Q. I notice that in the Demand/Supply
25 Plan report, as it once stood, the hydraulic plan was

1 the same for all load forecasts. You're familiar with
2 that?

3 A. We're talking about Exhibit 3?

4 Q. We may be.

5 A. Yes, and it was the same for all load
6 forecasts.

7 Q. And may I take it that one reason for
8 that was that Hydro wanted to include --

9 THE CHAIRMAN: I think it's the same for
10 all supply plans; is that a better way of putting it?

11 MR. SNELSON: I believe it was the same
12 for all load forecasts and for all supply plans.

13 MR. HAMER: Q. At page 17-5 of the
14 Demand/Supply Plan - and we needn't turn this up - the
15 statement is set out that:

16 "Hydraulic plan is the same for the
17 lower, medium and upper load forecast."

18 And that was the premise on which you
19 proceeded at the time of publication of the DSP?

20 MR. SNELSON: A. That is what we modeled
21 in our Demand/Supply Plan.

22 Q. And may I take it that one reason for
23 that was that Hydro wanted to maximize the practical,
24 feasible hydraulic capacity in each of its alternate
25 plans; i.e., regardless of your load growth you were

1 going to employ the same number of megawatts you
2 anticipated in hydraulic capacity?

3 A. It was part of a process where
4 hydraulic was a preferred resource and the intent was
5 that hydraulic, along with other preferred resources,
6 would be developed to the extent that it was economical
7 before going to major supply.

8 Q. And at the time of the DSP, the
9 figures were 1,209 megawatts by the end of the year
10 2000 and 2,850 roughly speaking by 2014; correct?

11 MR. HAMER: This is again at page 17-5 of
12 the DSP and it's a handwritten page No. 9 of the little
13 package that I distributed before I began, Mr.
14 Chairman.

15 THE CHAIRMAN: Well, if you distributed
16 the package before you began, I'm not sure I got it.

17 MR. HAMER: I'm sorry.

18 THE CHAIRMAN: I have it now.

19 MR. SNELSON: Yes.

20 MR. HAMER: Q. And Hydro is now saying
21 that 1,400 to 1,800 megawatts is a prudent range to
22 rely on by the year 2014 as we've heard?

23 MR. SNELSON: A. That is correct.

24 Q. And as of today then that is the
25 maximum which Hydro considers it to be prudent to rely

1 upon for planning purposes?

2 A. That is correct.

3 Q. And the difference between that range
4 which I've just mentioned and the numbers in the
5 Demand/Supply Plan document will have to be made up
6 from other supply sources; correct?

7 A. To the extent -- yes, they would be.

8 Q. I might turn to Mr. McCormick or Mr.
9 Harris, you can take your pick, very briefly on an area
10 which has been canvassed and I don't want to go through
11 in detail again.

12 If we look to handwritten page 1 of my
13 little package, these are errata to the Hydraulic Plan
14 Report, Exhibit 28, and you have added the statement:

15 "The release of two greenhouse gases
16 (carbon dioxide and methane) from
17 reservoirs has recently been identified
18 as an issue."

19 And that was a recent identification as
20 of about September of this year; is that correct?

21 MR. HARRIS: A. I think the issue has
22 emerged some time between the original submission of
23 the Demand/Supply Plan and the present. The errata may
24 have been in September, I'm not exactly sure.

25 Q. In any event, research is ongoing as

1 the errata states?

2 A. Yes, it is.

3 Q. And the results of that research have
4 not been quantified; fair?

5 A. That's correct, at this point.

6 Q. And, in particular, they haven't been
7 quantified in a form which would permit a numerical
8 comparison in respect of greenhouse gases to other
9 forms of electricity generation; is that fair?

10 A. The research which is ongoing hasn't
11 been quantified, but some preliminary estimates based
12 on literature have been carried out and we did make
13 some comparisons with other generating options, but it
14 was not based on any hard data, it was really
15 hypothetical calculations.

16 And just for your information, I may be
17 able to refer you to an interrogatory.

18 Q. Please.

19 MR. SNELSON: A. I believe it's 6.2.9.

20 Q. But not being based on hard data, we
21 can't say that there are hard data which would permit
22 comparisons to be drawn which are based on hard data on
23 both sides; fair?

24 MR. HARRIS: A. I would say that's fair.

25 Q. And it would be fair to say that our

1 knowledge in this area with respect to hydraulic
2 reservoirs is in its infancy; correct?

3 A. Yes, it is.

4 Q. And for the time being it would be
5 wrong to say that hydraulic stations with reservoirs do
6 not contribute to carbon loading of the atmosphere, and
7 that was the reason for the errata being published?

8 A. I think it would be appropriate to
9 say that some reservoirs may contribute to greenhouse
10 gases at a level which might be significant relative to
11 other options, for example, fossil generation.

12 I think it's also fair to say that some
13 reservoirs, in all likelihood, do not contribute
14 significantly to the greenhouse effect, it's a
15 case-by-case situation which isn't that well defined at
16 the moment.

17 Q. Turning to mercury again briefly, am
18 I correct in thinking that Hydro cannot quantify the
19 likely environmental impact in terms of increased
20 mercury levels in fish.

21 If the new recommended range of hydraulic
22 generation is approved by this Board, you simply can't
23 go from that approval to estimating in any quantitative
24 manner the mercury effects on fish?

25 A. When you say in a quantitative

1 manner, are you talking about mercury levels in each
2 specific case, each project as it would be proceeded
3 with?

4 Q. Or overall.

5 A. At this point there is no set of
6 particular sites that's been identified and studied,
7 and my understanding is that in looking at the
8 hydroelectric option generally, mercury is an issue,
9 but we don't have any hard numbers to present in this
10 forum in terms of future projects because we'd have to
11 look at them one at a time.

12 Q. So that, for example, by comparison
13 with Hydro's existing fossil plants, and which it
14 advises the provincial government every year of its
15 output of acid gases, we're nowhere near that kind of
16 decision; fair?

17 A. We don't have the -- I can't comment
18 on the level of detail that's provided for other
19 generation options, but we don't have the great
20 precision in terms of predicting the quantity of
21 methylmercury produced and taken up by fish.

22 Q. And if our knowledge is not in its
23 infancy in that area, it's no more than in its
24 adolescence; is that fair?

25 A. Well, I think that would be a

1 subjective statement or opinion. I think we have quite
2 a bit of knowledge about the mercury issue, where in
3 the maturity issue you want to put it, I say we do
4 still have more to learn, yes.

5 Q. All right. And given the long
6 history of hydraulic generation in this province, you
7 have quite a bit more to learn; isn't that fair? It's
8 a relatively recent concern against the history of
9 hydraulic generation in this province?

10 A. Well, in the sense that it's been an
11 issue since the late 70s and early 80s, it depends how
12 you want to view it.

13 I think although we have more to learn, I
14 think if it's looked at on a case-by-case basis, I
15 think there are many situations where we could have
16 some confidence in our assessment of the situation
17 which would be handed in an environmental assessment.

18 So that there's more to learn, but I do
19 think that we do have in many cases, probably in
20 several cases a fair degree of confidence about what
21 the issue would be in terms of the mercury in fish and
22 in humans.

23 Q. To the extent that you described it a
24 moment ago, at least as far as quantitative estimates
25 are concerned?

1 A. Well, I think I've made it clear
2 before that we can't make accurate predictions of the
3 exact mercury levels in fish, no.

4 Q. Mr. Snelson, would you agree that of
5 the uncertainties associated with hydraulic
6 developments, environmental approvals are at the head
7 of the list?

8 MR. SNELSON: A. They're a very
9 significant source of uncertainty.

10 Q. And if one were to list them, that
11 would probably be the first uncertainty or one of the
12 first; fair?

13 MR. MCCORMICK: A. I think that's fair
14 to say that that's true of all forms of generation and
15 transmission.

16 Q. All right. And am I correct, Mr.
17 Snelson, in saying that assessing any form of
18 generation, the prudent utility planner will want
19 sufficient certainty in the option to justify foregoing
20 plans for other supply options?

21 A. Yes, there is certainly an element to
22 that, that if given that some options are uncertain we
23 want to have some confidence that there are other ways
24 of meeting the demand if that option should fail.

25 Q. And the greater the uncertainty

1 surrounding a particular supply option, the less
2 willing the prudent planner will be to forego other
3 options; is that fair?

4 A. Yes.

5 Q. And we talked ad nauseum about the
6 fact that as compared to other supply options, prudent
7 planning for hydraulic requires a greater resort to
8 site-specific factors; is that fair?

9 [4:35 p.m.]

10 A. Certainly hydroelectric planning is
11 very site-specific.

12 Q. And from the perspective of a prudent
13 utility planner, is it correct that the planner finds
14 it more difficult to place reliance for planning
15 purposes on hydraulic potential until he or she has
16 site-specific approvals?

17 A. Not necessarily.

18 Q. Well, in Hydro's original application
19 to this Board, it included a greater degree of site
20 specificity in the approvals it was seeking; correct?

21 A. In the original application, yes.

22 Q. And I suggest to you that one of the
23 reasons for that was a desire to have the necessary
24 certainty associated with the hydraulic option which
25 could only come with site-specific approvals.

1 A. I don't believe that that was the
2 rationale.

3 Q. A part of the rationale?

4 A. No, I don't believe it was.

5 Q. Nothing to do whatsoever with the
6 rationale?

7 A. The rationale was more to do with the
8 site-specific nature of the opportunities and the
9 meaningfulness of the approvals that would be obtained.
10 But this is getting, I believe, further down the track
11 than we should be at the moment, but I don't believe it
12 was an issue of trying to increase the certainties
13 associated with things.

14 It was because of the way in which the
15 options are usually described and can best be described
16 on a site-specific basis.

17 Q. Let me try it from the other end. If
18 you were to have come out of this hearing with
19 site-specific approvals for the sites which stand
20 behind the 14 to 1,800 megawatt range, you would regard
21 that range of hydroelectric megawatts as being a more
22 certain thing, would you not?

23 A. I believe that you are one step
24 further down the process of having got an approval and
25 that that would give you some degree of increased

1 confidence.

2 Q. That's my hypothesis, that one is
3 that further step down that process, one then has a
4 greater degree of certainty.

5 A. I believe that there would be a
6 greater degree of certainty in that case.

7 Q. And by certainty that leads to the
8 ability for the planner to recommend foregoing other
9 supply options.

10 A. Directionally, yes, but each of these
11 hydraulic options is not all that large as regards our
12 planning, and so the uncertainty in the hydraulic plan
13 is not the largest uncertainties that we face; we have
14 to face much larger uncertainties.

15 Q. All right. Let's go back to Hydro
16 Quebec then. Looking to their experience, would you
17 agree that Hydro Quebec's plans for further hydraulic
18 expansions have run into significant obstacles over the
19 last year or two?

20 A. Well, I don't believe that it's
21 appropriate for me to comment on that.

22 Q. We both read the Globe and Mail, we
23 know that, don't we?

24 A. My knowledge is what I read in the
25 Globe and Mail.

1 Q. Even Robert Redford is on the
2 bandwagon now.

3 Opposition from Aboriginal peoples is
4 perhaps the most important obstacle that's emerged in
5 Hydro Quebec's experience; fair?

6 A. This is apparently so from what I
7 have read in the newspapers, but I don't have specific
8 expertise with respect to the Hydro Quebec situation.

9 Q. And in your job you don't pay
10 attention to what is happening to Hydro Quebec's
11 hydraulic plans as they relate to Aboriginal
12 opposition?

13 A. In terms of a watching brief but not
14 in terms of a great deal of detail.

15 Q. That's all I am looking for is what
16 your watching brief has gleaned.

17 From your perspective as a prudent
18 utility planner, would it be fair to say that a planner
19 at Hydro Quebec would likely be looking at the
20 hydraulic options there with less certainty than he or
21 she did a couple of years ago?

22 A. I really couldn't comment on what the
23 planners in Hydro Quebec might be looking at.

24 Q. Place yourself in their shoes though.
25 I am putting to you a hypothetical. You have changed

1 employers and you are working for Hydro Quebec and you
2 know what has happened there from reading the
3 newspapers. Would you not regard their hydraulic
4 expansion program with less certainty than you did two
5 years ago?

6 A. I don't know what degree of certainty
7 they associated with it two years ago.

8 Q. But it hasn't gotten anymore certain,
9 you will go that far with me.

10 A. Probably. But this is speculation, I
11 feel.

12 Q. Well then, let's come back to Ontario
13 Hydro. We can safely assume that there will be
14 significant opposition to all of the sites that stand
15 behind the 1,400 to 1,800 megawatts with the exception
16 of Niagara, Lake Gibson and Big Chute; is that fair?
17 By opposition I mean Aboriginal opposition.

18 A. Maybe somebody else would comment on
19 that.

20 Ms. Quinn?

21 Q. Ms. Quinn, or whoever.

22 MS. QUINN: A. If you limit it to
23 northern and to Aboriginal, that may be true. I don't
24 think it's a generalization that I would want to agree
25 with completely.

1 Q. But you will agree that Aboriginal
2 opposition can be expected to be vigorous?

3 A. Yes. I guess I am trying to point
4 out a wrinkle here, and that is predominantly northern,
5 there is a distinction to be made.

6 Q. Are you referring to the northern
7 rivers or just north of Toronto?

8 A. Northern Aboriginal as opposed to
9 southern Aboriginal, there are differences.

10 Q. All right. Well, with respect to the
11 sites which will affect northern Aboriginal peoples,
12 you would agree that an especially high degree of
13 uncertainty has to attach to those megawatts by reason
14 of the Aboriginal concerns alone.

15 A. You are referring to uncertainty
16 associated with site-specific approvals?

17 Q. Yes. I am looking forward to the
18 next stage.

19 A. Well, things may change. If you look
20 from today that may be the case, but over a longer
21 period of time things may change.

22 Q. I think it was you that said
23 yesterday or today that what you are doing nowadays is
24 to acknowledge the uncertainty up front; fair?

25 A. Yes. And I also added to that, I

1 believe, we are trying to do something about it.

2 Q. And we all applaud that.

3 Let us look, please, to page 4 of my
4 little packet. There is a full paragraph that starts
5 near the top of the page, "Hydraulic plants are often
6 situated," et cetera, and the last sentence in that
7 paragraph reads --

8 THE CHAIRMAN: This is an extract from
9 Exhibit 28?

10 MR. HAMER: Yes, I'm sorry, Mr. Chairman.

11 THE CHAIRMAN: I just made that comment
12 for purposes of the record, if anyone is following it
13 in the record. So it's page 5 of Exhibit 28.

14 MR. HAMER: Yes.

15 Q. And in Exhibit 28, as it was written,
16 it stays:

17 "Natives peoples' interest from both a
18 lifestyle and land claims viewpoint may
19 also be an important factor when
20 considering individual projects."

21 If one were to write that report today,
22 one would use different words; correct? For example,
23 one might say, "will be an enormously significant
24 factor" in considering individual projects?

25 MS. QUINN: A. The words might be

1 different, but I don't know if I were the author that I
2 would use exactly the words you have suggested. But,
3 yes, I would probably change it slightly.

4 Q. It would be stronger?

5 A. Yes, that's right.

6 Q. And, Mr. Snelson, will you go this
7 far with me, that with reference to the hydraulic sites
8 which can be anticipated to be opposed strenuously by
9 the Aboriginal peoples, there is a special degree of
10 uncertainty associated with them, even though you
11 include those sites in your recommended range of
12 hydraulic capacity, a special degree of uncertainty as
13 compared to other forms of generation?

14 MR. SNELSON: A. I am not sure whether
15 the uncertainty is any greater than that associated
16 with other forms of generation. Clearly the
17 uncertainty is probably different in that it is coming
18 from a different source.

19 Q. Could we look to Volume 83 of the
20 transcript, please.

21 I'm sorry, Mr. Chairman, I have included
22 in my package some of the transcript pages which I was
23 going to look to, but I found in reviewing it that I
24 had left a couple of out. I am going to start at
25 handwritten page 14 of my package, which is page 14722.

1 You recall, Mr. Snelson, Mr. Moran took
2 you through a number of components of the exclusions
3 from the recommended range, one of which was the 998
4 megawatts involved with sites as to which Hydro has
5 insufficient data. You may want the whole transcript
6 to put that excerpt in context.

7 These are 998 megawatts which reside
8 within the exclusions for environmental, technical and
9 other economic constraints. Those were sites as to
10 which there was simply insufficient data and the
11 existing data was largely derived from aerial
12 photographs.

13 Do you recall a discussion about that
14 component?

15 MS. BASU ROY: A. Perhaps I can help out
16 a little bit here. That part of the testimony I
17 believe I was talking about the 998.

18 Are you specifically referring to --

19 Q. I am reading from Mr. Snelson's
20 testimony at pages 14720 to 22.

21 Do you have that, Mr. Snelson?

22 MR. SNELSON: A. I certainly recall the
23 general gist of Mr. Moran's cross-examination. It's
24 the specific numbers I think that we are having
25 difficulty tying to.

1 Q. Would you look to 14720 in the
2 transcript?

3 A. Yes, I have 14720.

4 Q. You will see at line 15, Mr. Moran
5 says:

6 Is this a principle that could not
7 apply equally to the 988 megawatts of
8 sites that you don't have a lot of
9 information about at this point?

10 And he goes on to ask: Is it premature
11 to exclude those sites?

12 Those sites are referred to at page 9 of
13 Exhibit 28 as some remote sites totaling 988 megawatts
14 have been excluded as only limited data obtained
15 primarily from aerial photography is available at this
16 time.

17 MR. SNELSON: A. I believe there is more
18 information on those on page 32 of Exhibit 362 which is
19 the overheads that were delivered by Ms. Basu Roy in
20 her evidence.

21 That lists 1,795 megawatts that have been
22 excluded for a variety of other environmental,
23 technical and economic reasons, and if you deduct from
24 1,795, the 796 of the Ottawa river extensions you will
25 get 999, which is quite close to the 988, and I think

1 is the equivalent number.

2 Q. And that 999 or 998, are associated
3 with sites as to which you have very limited data;
4 fair?

5 A. In some cases, yes.

6 Q. And Mr. Moran asked you at page
7 14722, line 6:

8 "Does it not follow then that those 998
9 megawatts should be kept on the table at
10 least until more information is
11 obtained?"

12 And your answer was: "They are on the
13 table."

14 And my question simply was this: By
15 saying that they are on the table, you do not mean to
16 imply in any way that it would be safe to rely on those
17 megawatts for planning purposes?

18 [4:49 p.m.]

19 A. I agree with you, as it would not be
20 safe to rely upon them for planning purposes at this
21 time.

22 Q. And certainly, one would not forego
23 plans for other supply options in reliance on those
24 megawatts all becoming available?

25 A. That is correct.

1 Q. Similarly, if we go over to 14725,
2 there is a reference to the 652 megawatts of, what were
3 loosely called, backup sites, some of which might
4 eventually find their way into attainable potential.

5 Do you remember that discussion?

6 A. Yes, I do.

7 Q. And Mr. Moran asked at line 15 of
8 page 14725:

9 I take it that those sites are still
10 very much on the table, though."

11 And your answer was:

12 "That's correct. I did mention that
13 in my direct evidence."

14 And again, those are megawatts which you
15 would not rely upon for planning purposes?

16 A. That was Ms. Basu Roy's answer, but
17 yes, we would not rely upon those for planning
18 purposes.

19 Q. All right. And certainly with that
20 group, one would never simply add that number of 656 to
21 the recommended range of 1400 to 1800 because those are
22 backup sites which would come on to replace sites that
23 fell off the preferred list; is that fair?

24 A. That is one way they could be used.
25 They could be used in addition to the preferred list

1 too if they were to be found to be economical, but the
2 likelihood of all of those sites proceeding is very
3 small indeed. It is a question that some - one, two or
4 a few more of those might, but we don't know that at
5 this time.

6 Q. And similarly, a few of the sites
7 which are now contained within the recommended range
8 may fall off?

9 A. That is correct.

10 Q. All right. And again, at page 14723,
11 there was a discussion of the 1511 megawatts on the
12 Moose River Basin.

13 And again, you would not rely on those
14 megawatts at present for planning purposes?

15 A. That is correct.

16 Q. And even if a co-planning process
17 were agreed upon with the affected Aboriginal peoples,
18 may I take it that there would still be a high degree
19 of uncertainty as to the possibility of those sites
20 actually being developed?

21 A. That would depend upon what sort of
22 confidence the co-planning agreement gave us that the
23 sites would proceed to be developed.

24 Q. But certainly, sitting here today
25 without even a co-planning agreement, there is very

1 little basis to say what degree of confidence you will
2 have; is that fair?

3 A. It would depend upon what sort of
4 co-planning agreement was reached.

5 Q. And that is why you took the 1500
6 megawatts out?

7 A. That is correct, because we don't
8 have any agreement, co-planning agreement, at this
9 stage.

10 Q. All right. If we go to page 14773 of
11 the same volume of transcript, we come to the
12 conclusion of Mr. Moran's exercise in addition and you
13 get to a range by addition of 3704 megawatts to 4108
14 megawatts.

15 And Mr. Snelson, may we take it then that
16 in no way, shape or form are you to be taken as
17 suggesting that that range is an appropriate range of
18 attainable potential to be relied upon for planning
19 purposes?

20 A. I believe the appropriate range for
21 planning purposes is the 1400 to 1800 megawatts and
22 that the numbers that resulted in this higher range was
23 a strict response to arithmetical questions that Mr.
24 Moran put to me.

25 Q. Finally, Mr. Snelson, would you agree

1 with me that in assessing the hydraulic potential, one
2 of the basic points is that most of the available
3 capacity is peaking capacity and not base load
4 capacity?

5 A. Yes, to a large degree, it tends
6 towards the peaking end of the range.

7 Q. The expected capacity or rather --
8 yes, the expected capacity factor is on average about
9 23 per cent?

10 A. I believe I did that calculation and
11 came up with a similar number, yes.

12 Q. And if we were to take our
13 calculators and apply that 23 per cent to the 1400 to
14 1800 megawatt range, will you take it from me that that
15 comes to a range of 322 to 414 megawatts on average?

16 A. 322 for the lower end and 414 for the
17 upper end.

18 Q. And that simply gives you a rough
19 idea of what contribution the hydraulic plan as it now
20 stands will make on average in terms of added capacity?

21 A. Well, that is not a measure of
22 capacity.

23 Q. No.

24 A. That is a measure of energy in terms
25 of average megawatts of energy.

1 Q. All right. And you would agree that
2 by and large, the remaining hydraulic potential in the
3 province cannot be regarded as base load capacity?

4 A. That is correct. It works very well
5 in combination with base load capacity because of its
6 flexibility for peaking purposes.

7 Q. And to the extent that additional
8 base load capacity is going to be required during the
9 planning period, it is going to have to come from other
10 supply sources; is that fair?

11 A. There may be some components of base
12 load capacity. Some of the non-utility generation may
13 be hydraulic and non-utility generation may be
14 effectively base load, but this is not a very large
15 source of base load capacity.

16 Q. It is minuscule?

17 A. It is very small.

18 MR. HAMER: I will take that. Thank you,
19 Mr. Chairman.

20 THE CHAIRMAN: Okay. Any questions?

21 MR. HARRIS: Mr. Chairman, it is Reed
22 Harris. Perhaps I should just make a clarification to
23 the interrogatories that were mentioned just a moment
24 ago. Mr. Snelson, I believe, mentioned 6.2.9.

25 THE REGISTRAR: And that should be given

1 367.118.

2 MR. HARRIS: No. I was going to comment
3 that--

4 THE CHAIRMAN: It is the wrong number?

5 MR. HARRIS: --it does deal with
6 greenhouse gases in reservoirs, but the interrogatory
7 which I was thinking of which has some preliminary
8 calculations which we did is 6.17.2.

9 THE CHAIRMAN: All right. Can we make
10 that substitution then?

11 THE REGISTRAR: Yes.

12 THE CHAIRMAN: 6.17.2 will be 118.

13 THE REGISTRAR: Right.

14 ---EXHIBIT NO. 367.118: Interrogatory No. 6.17.2.

15 MR. HARRIS: Thank you, Mr. Chairman.

16 THE CHAIRMAN: Thank you, Mr. Harris.

17 MS. HARVIE: Mr. Chairman, I have spoken
18 with my friend Mr. Mattson and he is prepared to start
19 at 9:00 tomorrow in an effort to --

20 THE CHAIRMAN: What hour did you say?
21 (Laughter)

22 MS. HARVIE: Well, it is only a
23 suggestion.

24 THE CHAIRMAN: Is there anybody up at
25 that time? Well, I don't mean to be facetious, but

1 some of us have commitments between nine and ten
2 tomorrow morning, and so as much as I would like to do
3 that, we will have to start at the normal time.

4 MS. HARVIE: All right, that is fine.

5 THE CHAIRMAN: But thank you for your
6 offer though.

7 MS. HARVIE: All right. Well, it stands
8 for any other day next week as well that we are
9 starting at ten in the morning. We are obviously
10 anxious, if possible, to finish the panel by the
11 Christmas break so the witnesses can go home and have a
12 good rest - me, too.

13 THE CHAIRMAN: We will adjourn until
14 tomorrow morning at ten o'clock.

15 THE REGISTRAR: Please come to order.
16 This hearing will adjourn until ten o'clock tomorrow
17 morning.

18 ---Whereupon the hearing was adjourned at 4:58 p.m., to
19 be reconvened on Thursday, the 12th day of December,
20 1991, at 10:00 a.m.

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